SOLUBILITY DATA SERIES

Volume 35

4-AMINOBENZENESULFONAMIDES

Part II

5-Membered Heterocyclic Substituents
NOTICE TO READERS

Dear Reader

If your library is not already a standing-order customer or subscriber to the Solubility Data Series, may we recommend that you place a standing order or subscription order to receive immediately upon publication all new volumes published in this valuable series. Should you find that these volumes no longer serve your needs, your order can be cancelled at any time without notice.

Robert Maxwell
Publisher at Pergamon Press

A complete list of volumes published in the Solubility Data Series will be found on p. 343.
Copyright © 1988 International Union of Pure and Applied Chemistry

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means: electronic, electrostatic, magnetic tape, mechanical, photocopying, recording or otherwise, without permission in writing from the copyright holders.

First edition 1988

The Library of Congress has catalogued this serial title as follows:

Solubility data series. — Vol. 1 — Oxford; New York; Pergamon, c 1979-
v.: 28 cm.
Separately catalogued and classified in LC before no. 18.
ISSN 0191-5622 = Solubility data series.
1. Solubility — Tables—Collected works.
QD543.S6629 541.3’42’05-dc19 85-641351
AACR 2 MARC-S

British Library Cataloguing in Publication Data
4-Aminobenzenesulfonamides
Pt. 2: 5-membered heterocyclic substituents
1. Sulfonamides. Solubility
I. Paruta, Anthony N. II. Piekos, Ryszard
III. Series
547.7’5045’42
ISBN 0-08-034708-8

Printed in Great Britain by A. Wheaton & Co Ltd, Exeter
**CONTENTS**

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
</tr>
<tr>
<td>Preface</td>
</tr>
<tr>
<td>Introduction to the Series on Solubility of Solids in Liquids: Sub-series on Pharmaceuticals</td>
</tr>
<tr>
<td>Structures</td>
</tr>
<tr>
<td>4-Aminobenzene sulfonamides - Part II: 5-Membered Heterocyclic Substituents</td>
</tr>
<tr>
<td>1. 4-Amino-N-1H-imidazol-2-yl-benzenesulfonamide</td>
</tr>
<tr>
<td>2. 4-Amino-N-(1-phenyl-1H-pyrazol-5-yl)benzenesulfonamide</td>
</tr>
<tr>
<td>3. 4-Amino-N-(3-methyl-1-phenyl-1H-pyrazol-5-yl)benzenesulfonamide</td>
</tr>
<tr>
<td>4. 4-Amino-N-(1-phenyl-2,3-dimethyl-5-oxopyrazol-4-yl)benzenesulfonamide</td>
</tr>
<tr>
<td>5. 4-Amino-N-H-1,2,4-triazol-3-yl-benzenesulfonamide</td>
</tr>
<tr>
<td>6. 4-Amino-N-H-1,2,4-triazol-4-yl-benzenesulfonamide</td>
</tr>
<tr>
<td>7. 4-Amino-N-(5-methyl-3-isoxazolyl)benzenesulfonamide</td>
</tr>
<tr>
<td>8. 4-Amino-N-(5-methyl-3-isoxazolyl)benzenesulfonamide-1,4,10,13,16-hexaoxa- cyclooctadecane complex</td>
</tr>
<tr>
<td>9. 4-Amino-N-methyl-N-(5-methyl-3-isoxazolyl)benzenesulfonamide</td>
</tr>
<tr>
<td>10. N-[4-(aminophenyl)sulfonyl]-N-(5-methyl-3-isoxazolyl)acetamide</td>
</tr>
<tr>
<td>11. N-[4-[(5-methyl-3-isoxazolyl)amino]sulfonyl]phenylacetamide</td>
</tr>
<tr>
<td>12. 4-Amino-N-(3,4-dimethyl-5-isoxazolyl)benzenesulfonamide</td>
</tr>
<tr>
<td>13. N-[4-(aminophenyl)sulfonyl]-N-(3,4-dimethyl-5-isoxazolyl)acetamide</td>
</tr>
<tr>
<td>14. N-[4-[4-aminophenyl]sulfonyl]-N-3,4-dimethyl-5-isoxazolylacetamide</td>
</tr>
<tr>
<td>15. N-[4-[[3,4-dimethyl-5-isoxazolyl]amino]sulfonyl]phenylacetamide</td>
</tr>
<tr>
<td>16. N-[4-(acetylamino)phenyl]sulfonyl]-N-(3,4-dimethyl-5-isoxazolylacetamide</td>
</tr>
<tr>
<td>17. 4-Amino-N-(2,5-dimethyl-2,3-dihydroisoxazolyl)benzenesulfonamide</td>
</tr>
<tr>
<td>18. 4-Amino-N-2-oxazolylbenzenesulfonamide</td>
</tr>
<tr>
<td>19. 4-Amino-N-(4,5-dimethyl-2-oxazolyl)benzenesulfonamide</td>
</tr>
<tr>
<td>20. 4-Amino-N-(5-methyl-1,2,4-oxadiazol-3-yl)benzenesulfonamide</td>
</tr>
<tr>
<td>21. 4-Amino-N-(4-methyl-1,2,5-oxadiazol-3-yl)benzenesulfonamide</td>
</tr>
<tr>
<td>22. 4-Amino-N-2-thiazolylbenzenesulfonamide</td>
</tr>
<tr>
<td>23. 4-Amino-N-2-thiazolylbenzenesulfonamide, hydrochloride</td>
</tr>
<tr>
<td>24. Bis-(4-amino-N-2-thiazolylbenzenesulfonamidato-N-O)-cobalt, hydrate</td>
</tr>
<tr>
<td>25. Bis-(4-amino-N-2-thiazolylbenzenesulfonamidato-N-O)-copper, hydrate</td>
</tr>
<tr>
<td>26. T-4-bis-(amino-N-2-thiazolylbenzenesulfonamidato-N-O)-magnesium, hydrate</td>
</tr>
<tr>
<td>27. Bis-(4-amino-N-2-thiazolylbenzenesulfonamidato-N-O)-manganese, hydrate</td>
</tr>
<tr>
<td>28. Bis-(4-amino-N-2-thiazolylbenzenesulfonamidato-N-O)-nickel, hydrate</td>
</tr>
<tr>
<td>29. 4-Amino-N-2-thiazolylbenzenesulfonamide, monosodium salt</td>
</tr>
</tbody>
</table>
30. 4-Amino-N-2-thiazolylbenzenesulfonamide, sodium, hexahydrate
31. T-4-bis-(4-amino-N-2-thiazolyl-benzenesulfonamidato-N\textsuperscript{2})-zinc(II)
32. 4-Amino-N-methyl-N-2-thiazolylbenzenesulfonamide
33. N-[4-[2-thiazolylamino)sulfonyl]phenyl]acetamide
34. 4-Oxo-[4-[4-(2-thiazolyl)sulfonyl]phenyl]amino]butanoic acid
35. 4-Amino-N-(4-methyl-2-thiazolyl)benzenesulfonamide
37. 4-Amino-N-(3-methyl-1,2,3-dihydro-2-thiazolyl)benzenesulfonamide
38. 4-Amino-N-2-[3-(2-hydroxyethyl)-2,3-dihydro-2-thiazolyl]benzenesulfonamide
39. 4-Amino-N-2-benzothiazolylbenzenesulfonamide
40. 4-Amino-N-[4-(4-biphenyl)-2-thiazolyl]benzenesulfonamide
41. 4-Amino-N-(4-methoxy-1,2,5-thiadiazol-3-yl)benzenesulfonamide
42. N-[4-(4-aminophenyl)sulfonyl]-N-(4-methoxy-1,2,5-thiadiazol-3-yl-acetamide
43. N-[4-[4-(methoxy-1,2,5-thiadiazol-3-yl)amino]sulfonyl]phenyl]acetamide
44. N-[4-(acetylamino)phenyl]-N-(4-methoxy-1,2,5-thiadiazol-3-yl-acetamide
45. 4-Amino-N-1,3,4-thiadiazol-2-ylbenzenesulfonamide
46. 4-Amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)benzenesulfonamide
47. 4-Amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)benzenesulfonamide, silver
49. 4-Amino-N-(5-ethyl-1,3,4-thiadiazol-2-yl)benzenesulfonamide
50. 4-[[5-ethyl-1,3,4-thiadiazol-2-yl]amino]sulfonyl]phenyl]acetamide
52. 4-Amino-N-(5-(2-propyl)-1,3,4-thiadiazol-2-yl)benzenesulfonamide
53. 4-Amino-N-(5-butyl-1,3,4-thiadiazol-2-yl)benzenesulfonamide
54. 4-Amino-N-[5-(2-methyl-2-propyl)-1,3,4-thiadiazol-2-yl]benzenesulfonamide
55. 4-Amino-N-(5-pentyl-1,3,4-thiadiazol-2-yl)benzenesulfonamide
56. 4-Amino-N-(5-(3-methylbutyl)-1,3,4-thiadiazol-2-yl)benzenesulfonamide
57. 4-Amino-N-(5-amino-1,3,4-thiadiazol-2-yl)benzenesulfonamide
58. 4-(4,5-dihydro-3-methyl-5-oxo-1H-pyrazol-1-yl)benzenesulfonamide

System Index
Registry Number Index
Author Index
Solubility data series
FOREWORD

If the knowledge is undigested or simply wrong, more is not better.

How to communicate and disseminate numerical data effectively in chemical science and technology has been a problem of serious and growing concern to IUPAC, the International Union of Pure and Applied Chemistry, for the last two decades. The steadily expanding volume of numerical information, the formulation of new interdisciplinary areas in which chemistry is a partner, and the links between these and existing traditional subdisciplines in chemistry, along with an increasing number of users, have been considered as urgent aspects of the information problem in general, and of the numerical data problem in particular.

Among the several numerical data projects initiated and operated by various IUPAC commissions, the Solubility Data Project is probably one of the most ambitious ones. It is concerned with preparing a comprehensive critical compilation of data on solubilities in all physical systems, of gases, liquids and solids. Both the basic and applied branches of almost all scientific disciplines require a knowledge of solubilities as a function of solvent, temperature and pressure. Solubility data are basic to the fundamental understanding of processes relevant to agronomy, biology, chemistry, geology and oceanography, medicine and pharmacology, and metallurgy and materials science. Knowledge of solubility is very frequently of great importance to such diverse practical applications as drug dosage and drug solubility in biological fluids, anesthesiology, corrosion by dissolution of metals, properties of glasses, ceramics, concretes and coatings, phase relations in the formation of minerals and alloys, the deposits of minerals and radioactive fission products from ocean waters, the composition of ground waters, and the requirements of oxygen and other gases in life support systems.

The widespread relevance of solubility data to many branches and disciplines of science, medicine, technology and engineering, and the difficulty of recovering solubility data from the literature, lead to the proliferation of published data in an ever increasing number of scientific and technical primary sources. The sheer volume of data has overcome the capacity of the classical secondary and tertiary services to respond effectively.

While the proportion of secondary services of the review article type is generally increasing due to the rapid growth of all forms of primary literature, the review articles become more limited in scope, more specialized. The disturbing phenomenon is that in some disciplines, certainly in chemistry, authors are reluctant to treat even those limited-in-scope reviews exhaustively. There is a trend to preselect the literature, sometimes under the pretext of reducing it to manageable size. The crucial problem with such preselection - as far as numerical data are concerned - is that there is no indication as to whether the material was excluded by design or by a less than thorough literature search. We are equally concerned that most current secondary sources, critical in character as they may be, give scant attention to numerical data.

On the other hand, tertiary sources - handbooks, reference books and other tabulated and graphical compilations - as they exist today are comprehensive but, as a rule, uncritical. They usually attempt to cover whole disciplines, and thus obviously are superficial in treatment. Since they command a wide market, we believe that their service to the advancement of science is at least questionable. Additionally, the change which is taking place in the generation of new and diversified numerical data, and the rate at which this is done, is not reflected in an increased third-level service. The emergence of new tertiary literature sources does not parallel the shift that has occurred in the primary literature.
Foreword

With the status of current secondary and tertiary services being as briefly stated above, the innovative approach of the Solubility Data Project is that its compilation and critical evaluation work involve consolidation and reprocessing services when both activities are based on intellectual and scholarly reworking of information from primary sources. It comprises compact compilation, rationalization and simplification, and the fitting of isolated numerical data into a critically evaluated general framework.

The Solubility Data Project has developed a mechanism which involves a number of innovations in exploiting the literature fully, and which contains new elements of a more imaginative approach for transfer of reliable information from primary to secondary/tertiary sources. The fundamental trend of the Solubility Data Project is toward integration of secondary and tertiary services with the objective of producing in-depth critical analysis and evaluation which are characteristic to secondary services, in a scope as broad as conventional tertiary services.

Fundamental to the philosophy of the project is the recognition that the basic element of strength is the active participation of career scientists in it. Consolidating primary data, producing a truly critically-evaluated set of numerical data, and synthesizing data in a meaningful relationship are demands considered worthy of the efforts of top scientists. Career scientists, who themselves contribute to science by their involvement in active scientific research, are the backbone of the project. The scholarly work is commissioned to recognized authorities, involving a process of careful selection in the best tradition of IUPAC. This selection in turn is the key to the quality of the output. These top experts are expected to view their specific topics dispassionately, paying equal attention to their own contributions and to those of their peers. They digest literature data into a coherent story by weeding out what is wrong from what is believed to be right. To fulfill this task, the evaluator must cover all relevant open literature. No reference is excluded by design and every effort is made to detect every bit of relevant primary source. Poor quality or wrong data are mentioned and explicitly disqualified as such. In fact, it is only when the reliable data are presented alongside the unreliable data that proper justice can be done. The user is bound to have incomparably more confidence in a succinct evaluative commentary and a comprehensive review with a complete bibliography to both good and poor data.

It is the standard practice that the treatment of any given solute-solvent system consists of two essential parts: I. Critical Evaluation and Recommended Values, and II. Compiled Data Sheets.

The Critical Evaluation part gives the following information:

(i) a verbal text of evaluation which discusses the numerical solubility information appearing in the primary sources located in the literature. The evaluation text concerns primarily the quality of data after consideration of the purity of the materials and their characterization, the experimental method employed and the uncertainties in control of physical parameters, the reproducibility of the data, the agreement of the worker’s results on accepted test systems with standard values, and finally, the fitting of data, with suitable statistical tests, to mathematical functions;

(ii) a set of recommended numerical data. Whenever possible, the set of recommended data includes weighted average and standard deviations, and a set of smoothing equations derived from the experimental data endorsed by the evaluator;

(iii) a graphical plot of recommended data.

The Compilation part consists of data sheets of the best experimental data in the primary literature. Generally speaking, such independent data sheets are given only to the best and endorsed data covering the known range of experimental parameters. Data sheets based on primary sources where the data are of a lower precision are given only when no better data are available. Experimental data with a precision poorer than considered acceptable are reproduced in the form of data sheets when they are the only known data for a particular system. Such data are considered to be still suitable for some applications, and their presence in the compilation should alert researchers to areas that need more work.
The typical data sheet carries the following information:

(i) components - definition of the system - their names, formulas and Chemical Abstracts registry numbers;
(ii) reference to the primary source where the numerical information is reported. In cases when the primary source is a less common periodical or a report document, published though of limited availability, abstract references are also given;
(iii) experimental variables;
(iv) identification of the compiler;
(v) experimental values as they appear in the primary source. Whenever available, the data may be given both in tabular and graphical form. If auxiliary information is available, the experimental data are converted also to SI units by the compiler.

Under the general heading of Auxiliary Information, the essential experimental details are summarized:

(vi) experimental method used for the generation of data;
(vii) type of apparatus and procedure employed;
(viii) source and purity of materials;
(ix) estimated error;
(x) references relevant to the generation of experimental data as cited in the primary source.

This new approach to numerical data presentation, formulated at the initiation of the project and perfected as experience has accumulated, has been strongly influenced by the diversity of background of those whom we are supposed to serve. We thus deemed it right to preface the evaluation/compilation sheets in each volume with a detailed discussion of the principles of the accurate determination of relevant solubility data and related thermodynamic information.

Finally, the role of education is more than corollary to the efforts we are seeking. The scientific standards advocated here are necessary to strengthen science and technology, and should be regarded as a major effort in the training and formation of the next generation of scientists and engineers. Specifically, we believe that there is going to be an impact of our project on scientific-communication practices. The quality of consolidation adopted by this program offers down-to-earth guidelines, concrete examples which are bound to make primary publication services more responsive than ever before to the needs of users. The self-regulatory message to scientists of the early 1970s to refrain from unnecessary publication has not achieved much. A good fraction of the literature is still cluttered with poor-quality articles. The Weinberg report (in 'Reader in Science Information', ed. J. Sherrod and A. Hodina, Microcard Editions Books, Indian Head, Inc., 1973, p. 292) states that 'admonition to authors to restrain themselves from premature, unnecessary publication can have little effect unless the climate of the entire technical and scholarly community encourages restraint...'. We think that projects of this kind translate the climate into operational terms by exerting pressure on authors to avoid submitting low-grade material. The type of our output, we hope, will encourage attention to quality as authors will increasingly realize that their work will not be suited for permanent retrievability unless it meets the standards adopted in this project. It should help to dispel confusion in the minds of many authors of what represents a permanently useful bit of information of an archival value, and what does not.

If we succeed in that aim, even partially, we have then done our share in protecting the scientific community from unwanted and irrelevant, wrong numerical information.

A. S. Kertes
PREFACE

With few exceptions, these volumes of the solubility data series deal with solubilities of the derivatives of 4-aminobenzenesulfonamide, usually referred to as "sulfanilamide" (sulfanilic acid amide), a name coined in 1937 (1). The history of sulfanilamide begins in 1906, when Schroeter (2) synthesized the molecule containing a 4-acetylamino-sulfanilamide portion.

\[
\text{CH}_3\text{CONH} - \text{SO}_2\text{NH} - \text{OC}_2\text{H}_5
\]

In 1908, Gelmo (3) described sulfanilamide and 13 of its derivatives and gave solubility values for these compounds. In 1935, Domagk (4) detected antibacterial activity of a synthetic azo dye, prontosil, with the structure.

\[
\text{H}_2\text{N} - \text{N} - \text{N} - \text{SO}_2\text{NH}_2
\]

This compound had been tested for antibacterial activity (5), the "sulfanilamide" portion being responsible for its activity. This was confirmed (6) by isolation of sulfanilamide in the urine of patients. Fildes (7) and Wood (8), in 1940, demonstrated that the derivatives of sulfanilamide were antimetabolites of p-aminobenzoic acid (PABA) which is a step in the folic acid synthesis of bacteria. Thus, the structural similarity of PABA and sulfonamides caused interference by competitive antagonism and resulted in a bacteriostatic effect. The discoveries of antibacterial activity led to an exciting flood of research, and thousands of sulfanilamide derivatives have been synthesized. As early as 1948, the number of sulfonamide derivatives (9) was estimated to be several thousand. In the two decades after that, the number of synthesized sulfonamides have gone past 10,000 (10).

Clinical trials of these sulfonamides and derivatives have been associated with low solubilities and some renal crystalluria. The low solubility, and its sensitivity to pH, could cause crystalline precipitation in the renal tubules in the filtration of blood into acidic urine. Some of the problems of limited solubility were overcome by complexation or salt formation, and solid state manipulations which in turn have stimulated investigations into solubility of the drugs in water, buffers and some binary solvent system. Analytical methodologies span a wide spectrum of techniques and the relevant references are in pharmaceutical, medical and chemical literature.

In all volumes the chemical structures, registry number and the molecular weight of the compounds considered are collected in the front of each volume. The compounds as they occur on the data sheets are given successively in each volume. In the first volume of this series there are 35 compounds. The second and third volumes have 58 compounds and 108 compounds, respectively.

NOMENCLATURE:

The nomenclature of sulfanilamide derivatives has conventionally been based on the following numbering system: substituents at the nitrogen atom of the amide group (\(-\text{SO}_2\text{NH}_2\)) are called \(\text{N}\)-substituents, whereas substituents at the 4-amino nitrogen (\(-\text{H}_2\text{N}\)) are called \(\text{N}^1\)-substituents. Substitution in either or both of the two positions lead to compounds referred to as "sulfonamides" (sometimes "sulfanilamides" or even "sulfamides"). Here are illustrative examples of this nomenclature.

\[
\text{H}_2\text{N} - \text{SO}_2\text{NH}_2 \quad \text{H}_2\text{N} - \text{SO}_2\text{NR}_2
\]

\(\text{N}^1\)-substituted sulfonamides
The 4-amino group can be diazotized to give derivatives of the formula

$$R-N=N\overset{\text{SO}_2\text{NH}_2}{\text{CO}}$$

As the sulfonamide molecule carries a basic 4-NH$_2$ group and an acid -SO$_2$NH$_2$ one, it is capable of formation the respective salts or complexes, e.g.

$$\text{HX} \cdot \underset{\text{SO}_2\text{NHR}}{\text{H}_2\text{N}}$$

where HX stands for an acid and M is a univalent metal atom.

In common use by health practitioners are nonproprietary names of sulfonamides which are brief and reflect the chemical nature of their molecules. Examples are: sulfacetamide, sulfapyridine, sulfathiazole, sulfadiazine, sulfaguanidine, etc. There are numerous trivial names; for example, sulfanilamide has as many as 160 synonyms, and sulfathiazole has 113. Negwer (11) has compiled an excellent guide to this nomenclature. In chemical literature, systematic names in line either with IUPAC (12) or Chemical Abstract rules (13) are used. The latter has been adopted in these volumes and the systematic name is, where appropriate, followed by the nonproprietary or trivial name.

ORGANIZATION OF THE VOLUMES:

The numerical data on the solubility of 2-aminobenzenesulfonamide, 3-aminobenzenesulfonamide, and 4-aminobenzenesulfonamide and its $N^1$ and $N^4$-derivatives, salts and complexes, compiled up to 1985 inclusive, have been divided into three volumes on the basis of chemical structure of the compounds.

The first volume includes the solubility of 2-aminobenzenesulfonamide, 3-aminobenzenesulfonamide, and 4-aminobenzenesulfonamide and the derivatives of the last-named compound substituted at either of the nitrogen atoms, or both, with non-cyclic substituents (see System Index at the end of the first volume). The aroyl substituents, -C(=O)aryl, have also been included here. The second volume includes sulfanilamide derivatives substituted with 5-membered heterocyclic rings at either of the nitrogen atoms, and their derivatives. The third volume covers the solubilities of the derivatives substituted with 6-membered rings, mixtures of sulfonamides, and miscellaneous. The compilations do not include compounds devoid of the -NH$_2$, -NHR or -NR$_2$ group in the benzene ring.

The solvent systems include all solvents with the exception of body fluids. The order of solvents for a particular solute are as follows: water; water-mineral acid; water-mineral base; water-mineral salt; water-miscellaneous mineral components; water-mineral and organic compounds; water-organic components; organic solvents; carboxylic acid and their salts; aliphatic acids; aromatic acids; other acids; alcohols, phenols (mono-, di-, polyhydric); amides; amines; aliphatic amines (primary, secondary, tertiary); aromatic amines (primary, secondary, tertiary); other amines; aminoalcohols; carboxylic acid esters; ethers (excluding tensides); hydrocarbons; aliphatic hydrocarbons; aromatic hydrocarbons; miscellaneous hydrocarbons; halogenated hydrocarbons (fluoro-, chloro-, bromo-, iodo-); aliphatic halogenated hydrocarbons; aromatic halogenated hydrocarbons; ketones; tensides (surface-active agents); miscellaneous organic solvents.
SIGNIFICANT FIGURES AND GRAPHICAL DATA:

In most cases, solubility values given in the primary source by various workers are overstated with respect to significant figures. Since the author(s) original values are given on the data sheets, it is difficult to consider significant figures and analytical limitations in a completely consistent fashion. Therefore, the reader should be aware that in most cases the number of significant figures used for calculations was not that given by the original author(s). This was done to maintain coherence and consistency as data were given to varying significant figures. In many cases graphic data of sufficient size and clarity are reproduced. The data can be regarded of sufficient accuracy to serve as a starting point for more precise determinations. In many instances, the effect of additive concentration, pH, temperature, etc. can be depicted.

POLYMORPHISM:

Many sulfonamides exhibit several crystalline forms or polymorphs. There are several studies referenced in these volumes that specifically deal with the solubility difference between polymorphic modifications of the same compound. The solubility differences between polymorphs have been found to vary over a large range of values.

AMPHOLYTES:

Solubility of ampholytic sulfonamides as a function of pH varies enormously, sometimes by several orders of magnitude. Unless the pH is known experimentally, the solubility value may be suspect especially at low (1-3) and high pH (10-12) values. In these cases, the solubility is a rapidly changing value, frequently with small incremental changes of pH. The abrupt change of solubility with pH is usually associated with the formation of water soluble anionic and cationic species. Buffers, especially at higher concentrations may alter solubility by salting effect and the pH is also affected by ionic strength.

EQUILIBRATION TIME:

In general, it appears that many of these determined solubilities may not have been under equilibrium conditions. Unfortunately, in too many instances the equilibration time appears too low. Typically, solutes possess low aqueous solubilities and require long dissolution time to reach saturation. Saturation time should be experimentally determined in each case and for each compound. In many cases up to 24 hours may be required.

The editors consider the vast majority of the solubility values given in these volumes as tentative. It should be stressed, however, that they represent a useful starting point for more accurate determinations of a vast array of substituted 4-aminobenzene-sulfonamides with many structurally and chemically related compound of various types. They amply illustrate the many factors and parameters affecting solubility and the direction and magnitude of these effects.

This compilation and evaluation is not only the result of the joint efforts of the compiler and evaluator, but also of all those who read the manuscripts, expressed their criticism, who procured copies of hard-to-get journals, who translated texts from Japanese as well as of those who in any other way assisted in the compilation and evaluation. We would like to express our gratitude in particular to the following colleagues: Prof. S. Kertes, Dr. M. Salomon, Prof. S. Yalkowsky, Prof. H. Akalwa, Prof. C. Kalidas, Prof. W. Riess, Prof. A. Guerrero-Laverat, Prof. P. Rohdewald, Prof. J. PuIter, Dr. K. L. Loeing, Dr. A. Broidin, Dr. D. Zima, Mr. K. Hazelton, Dr. R. Fernandez-Prini, and Mr. E. MacMullan.

REFERENCES TO THE PREFACE:

INTRODUCTION TO THE SERIES ON
SOLUBILITY OF SOLIDS IN LIQUIDS:
SUBSERIES ON PHARMACEUTICALS

Nature of the Project

The Solubility Data Project (SDP) has as its aim a comprehensive search of the literature for solubilities of gases, liquids, and solids in liquids or solids. Data of suitable precision are compiled on data sheets in a uniform format. The data for each system are evaluated, and where data from different sources agree sufficiently, recommended values are proposed. The evaluation sheets, recommended values, and compiled data sheets are published on consecutive pages.

For pharmaceuticals, the definitions, thermodynamics and methods of analysis are the same as those for the study of solubility of solids in liquids in general. For this subseries, special sections deal with matters of interest for pharmaceuticals, including discussions of polymorphism, factors influencing the rate of dissolution of drugs, and methods used to inhibit or enhance the rate of dissolution.

Definitions

A mixture (1, 2) describes a gaseous, liquid, or solid phase containing more than one substance, when the substances are all treated in the same way.

A solution (1, 2) describes a liquid or solid phase containing more than one substance, when for convenience one of the substances, which is called the solvent, and may itself be a mixture, is treated differently than the other substances, which are called solutes. If the sum of the mole fractions of the solutes is small compared to unity, the solution is called a dilute solution.

The solubility of a substance B is the relative proportion of B (or a substance related chemically to B) in a mixture which is saturated with respect to solid B at a specified temperature and pressure. Saturated implies the existence of equilibrium with respect to the processes of dissolution and precipitation; the equilibrium may be stable or metastable. The solubility of a substance in metastable equilibrium is usually greater than that of the corresponding substance in stable equilibrium. (Strictly speaking, it is the activity of the substance in metastable equilibrium that is greater.) Care must be taken to distinguish true metastability from supersaturation, where equilibrium does not exist.

Either point of view, mixture or solution, may be taken in describing solubility. The two points of view find their expression in the quantities used as measures of solubility and in the reference states used for definition of activities, activity coefficients and osmotic coefficients.

The qualifying phrase "substance related chemically to B" requires comment. The composition of the saturated mixture (or solution) can be described in terms of any suitable set of thermodynamic components. Thus, the solubility of a salt hydrate in water is usually given as the relative proportion of anhydrous salt in solution, rather than the relative proportions of hydrated salt and water.

For pharmaceuticals, the solubility of a drug substance in a given medium is of special importance in designing a suitable dosage form for a drug or in determination of a regimen for its administration. The solubility and rate of dissolution will determine the rate of appearance of the drug in various body fluids and at various sites of action. Therefore, the bioavailability of a drug is often determined by its solubility and rate of dissolution.

The solubility is a constant for a given substance in a given medium at constant temperature and pressure. Frequently it is possible to alter the solubility and rate of dissolution dramatically through changes in structure, degree of crystallinity or morphology, or by the addition of a solubilizing agent (cosolvent) to the dissolution medium. The appearance of a drug in adequate concentration at its site of action is a requirement for testing clinical efficiency; thus, enhancement of solubility may be required to render a substance clinically useful.

For reviews of recent literature on solubility and solubilization of
drug substances, see (3, 4).

Quantities Used as Measures of Solubility

1. Mole fraction of substance B, \( x_B \):

\[
x_B = n_B / \sum_{s=1}^{c} n_s
\]

where \( n_B \) is the amount of substance of \( s \), and \( c \) is the number of distinct substances present (often the number of thermodynamic components in the system). Mole per cent of \( B \) is 100 \( x_B \).

2. Mass fraction of substance B, \( w_B \):

\[
w_B = m_B / \sum_{s=1}^{c} m_s
\]

where \( m_B \) is the mass of substance \( s \). Mass per cent is 100 \( w_B \). The equivalent terms weight fraction and weight per cent are not used.

3. Solute mole (mass) fraction of solute B (5, 6):

\[
x_{s,B} = n_{s,B} / \sum_{s=1}^{c} n_s
\]

\[
w_{s,B} = m_{s,B} / \sum_{s=1}^{c} m_s
\]

where the summation is over the solutes only. For the solvent \( A \), \( x_{s,A} = x_A/(1 - x_A), w_{s,A} = w_A/(1 - w_A) \). These quantities are called Jænecke mole (mass) fractions in many papers.

4. Molality of solute B (1, 2) in a solvent A:

\[
m_B = n_B / n_A M_A
\]

where \( M_A \) is the molar mass of the solvent.

5. Concentration of solute B (1, 2) in a solution of volume \( V \):

\[
c_B = [B] = n_B / V
\]

The symbol \( c_B \) is preferred to \([B]\), but both are used. The terms molarity and molar are not used.

Mole and mass fractions are appropriate to either the mixture or the solution point of view. The other quantities are appropriate to the solution point of view only. Conversions among these quantities can be carried out using the equations given in Table 1-1 following this introduction. Other useful quantities will be defined in the prefaces to individual volumes or on specific data sheets.

In addition to the quantities defined above, the following are useful in conversions between concentrations and other quantities.

6. Density: \( \rho = m/V \)

7. Relative density: \( d; \) the ratio of the density of a mixture to the density of a reference substance under conditions which must be specified for both (1). The symbol \( d \) will be used for the density of a mixture at \( t^\circ C, 1 \) bar divided by the density of water at \( t^\circ C, 1 \) bar. (In some cases, 1 atm = 101.325 kPa is used instead of 1 bar = 100 kPa.)

8. A note on nomenclature. The above definitions use the nomenclature of the IUPAC Green Book (1), in which a solute is called \( B \) and a solvent \( A \). In compilations and evaluations, the first-named component (component 1) is the solute, and the second (component 2) for a two-component system is the solvent. The reader should bear these distinctions in nomenclature in mind when comparing nomenclature and theoretical equations given in this introduction with equations and nomenclature used on the evaluation and compilation sheets.

Thermodynamics of Solubility

The principal aims of the Solubility Data Project are the tabulation and evaluation of: (a) solubilities as defined above; (b) the nature of the saturating phase. Thermodynamic analysis of solubility phenomena has two aims: (a) to provide a rational basis for the construction of functions to represent solubility data; (b) to enable thermodynamic
quantities to be extracted from solubility data. Both these are
difficult to achieve in many cases because of a lack of experimental or
theoretical information concerning activity coefficients. Where
thermodynamic quantities can be found, they are not evaluated critically,
since this task would involve critical evaluation of a large body of
data that is not directly relevant to solubility. The following
is an outline of the principal thermodynamic relations encountered in
discussions of solubility. For more extensive discussions and references,
see books on thermodynamics, e.g., (7-14).

Activity Coefficients (1)

(a) Mixtures. The activity coefficient $f_B$ of a substance $B$ is given by

$$RT \ln(f_B) = \mu_B - \mu_B^*$$  \[7\]

where $\mu_B^*$ is the chemical potential of pure $B$ at the same temperature and
pressure. For any substance $B$ in the mixture,

$$\lim_{x_B \to 1} f_B = 1$$  \[8\]

(b) Solutions.

(i) Solute $B$. The molal activity coefficient $\gamma_B$ is given by

$$RT \ln(\gamma_B m_B) = \mu_B - (\mu_B - RT \ln m_B)^M$$  \[9\]

where the superscript $^M$ indicates an infinitely dilute solution. For any
solvent $B$,

$$\gamma_B^M = 1$$  \[10\]

Activity coefficients $\gamma_B$ connected with concentrations $c_B$, and $f_{X,B}$
(called the rational activity coefficient) connected with mole fractions
$x_B$, are defined in analogous ways. The relations among them (1, 9) are,
where $\rho^*$ is the density of the pure solvent:

$$f_B = (1 + M_B c_B)\gamma_B = \left[\rho + \sum(M_A - M_B) c_g\right]y_B/\rho^*$$  \[11\]

$$\gamma_B = (1 - \sum x_g) f_{X,B} = \left(\rho - \sum M_g c_g\right)\gamma_B/\rho^*$$  \[12\]

$$y_B = \rho^* f_{X,B} [1 + \sum(M_B/M_A - 1)x_B] / \rho = \rho^* [1 + \sum M_g c_g] y_B / \rho$$  \[13\]

For an electrolyte solute $B = C_{\nu+} A_{\nu-}$, the activity on the molality
scale is replaced by (11):

$$\gamma_{B_m} = \gamma_{B}^M q_V$$  \[14\]

where $\nu = \nu_+ + \nu_-$, $Q = (\nu_+^{\nu_+} \nu_-^{\nu_-})^{1/\nu}$, and $\gamma_\pm$ is the mean ionic activity
coefficient on the molality scale. A similar relation holds for the
concentration activity, $\gamma_{Bc}$. For the mole fractional activity,

$$f_{X,B} = Q^{\nu_+^{\nu_+} \nu_-^{\nu_-}}$$  \[15\]

where $x_\pm = (x_+ x_-)^{1/\nu}$. The quantities $x_+$ and $x_-$ are the ionic mole
fractions (11), which are:

$$x_+ = n_+ x_B [1 + \sum(v_g - 1)x_g]; \quad x_- = n_- x_B [1 + \sum(v_g - 1)x_g]$$  \[16\]

where $v_g$ is the sum of the stoichiometric coefficients for the ions in a
salt with mole fraction $x_g$. Note that the mole fraction of solvent is now

$$x_A' = (1 - \sum v_g x_g) / [1 + \sum (v_g - 1)x_g]$$  \[17\]

so that

$$x_A' + \sum v_g x_g = 1$$  \[18\]

The relations among the various mean ionic activity coefficients are:

$$f_\pm = (1 + M_\pm v_{g_m}) \gamma_\pm = \left[\rho + \sum (v_g M_A - M_g) c_g\right] y_\pm / \rho^*$$  \[19\]

$$\gamma_\pm = \frac{(1 - \sum x_g) f_\pm}{1 + \sum (v_g - 1)x_g} = \left(\rho - \sum M_g c_g\right) \gamma_\pm / \rho^*$$  \[20\]

$$y_\pm = \frac{\rho^* [1 + \sum (M_B/M_A - 1)x_B] f_\pm}{\rho [1 + \sum (v_g - 1)x_g]} = \rho^* [1 + \sum M_g c_g] \gamma_\pm / \rho$$  \[21\]
The osmotic coefficient, $\phi$, of a solvent A is defined as (1):

$$\phi = (\mu_A^* - \mu_A)/RT M_A \sum_m$$ \[22\]

where $\mu_A^*$ is the chemical potential of the pure solvent.

The rational osmotic coefficient, $\phi_x$, is defined as (1):

$$\phi_x = (\mu_A - \mu_A^*)/RT \ln x_A = \phi A M_A \sum_m/\ln(1 + M_A \sum_m)$$ \[23\]

The activity, $a_A$, or the activity coefficient, $f_A$, is sometimes used for the solvent rather than the osmotic coefficient. The activity coefficient is defined relative to pure A, just as for a mixture.

For a mixed solvent, the molar mass in the above equations is replaced by the average molar mass; i.e., for a two-component solvent with components J, K, $M_A$ becomes

$$M_A = M_J + (M_K - M_J)x_{V,K}$$ \[24\]

where $x_{V,K}$ is the solvent mole fraction of component K.

The osmotic coefficient is related directly to the vapor pressure, $P$, of a solution in equilibrium with vapor containing A only by (14, p.306):

$$\phi A M_A \sum_m = -[(\ln(P/P_A^*) + (V_{m,A} - B_{AA})(P - P_A^*)/RT]$$ \[25\]

where $P_A^*$ is the vapor pressure of pure solvent A, $V_{m,A}$ is the molar volume of pure A in the liquid phase, and $B_{AA}$ is the second virial coefficient of the vapor.

**The Liquid Phase**

A general thermodynamic differential equation which gives solubility as a function of temperature, pressure and composition can be derived. The approach is similar to that of Kirkwood and Oppenheim (9); see also (13, 14). Consider a solid mixture containing $c$ thermodynamic components $i$. The Gibbs-Duhem equation for this mixture is:

$$\sum_{i=1}^{c} x_i'(S_i'dT - V_i'dp + d\mu_i') = 0$$ \[26\]

A liquid mixture in equilibrium with this solid phase contains $c'$ thermodynamic components $i$, where $c' > c$. The Gibbs-Duhem equation for the liquid mixture is:

$$\sum_{i=1}^{c} x_i(S_i'dT - V_i'dp + d\mu_i) + \sum_{i=c+1}^{c'} x_i(S_i'dT - V_i'dp + d\mu_i) = 0$$ \[27\]

Subtract [26] from [27] and use the equation

$$d\mu_i = (d\mu_i)_{T,P} S_i'dT + V_i'dp$$ \[28\]

and the Gibbs-Duhem equation at constant temperature and pressure:

$$\sum_{i=1}^{c} x_i(d\mu_i)_{T,P} + \sum_{i=c+1}^{c'} x_i(d\mu_i)_{T,P} = 0$$ \[29\]

The resulting equation is:

$$RT \sum_{i=1}^{c} x_i'(d\ln a_i)_{T,P} = \sum_{i=1}^{c} x_i'(H_i - H_i')dT/T - \sum_{i=1}^{c} x_i'(V_i - V_i')dp$$ \[30\]

where

$$H_i - H_i' = T(S_i - S_i')$$ \[31\]

is the enthalpy of transfer of component $i$ from the solid to the liquid phase at a given temperature, pressure and composition, with $H_i$ and $S_i$ the partial molar enthalpy and entropy of component $i$.

Use of the equations

$$H_i - H_i^0 = -RT^2(d\ln a_i/\partial T)_{x,p}$$ \[32\]

and

$$V_i - V_i^0 = RT(d\ln a_i/\partial p)_{x,T}$$ \[33\]

where superscript 0 indicates an arbitrary reference state gives:

$$RT \sum_{i=1}^{c} x_i' d\ln a_i = \sum_{i=1}^{c} x_i'(H_i^0 - H_i')dT/T - \sum_{i=1}^{c} x_i'(V_i^0 - V_i')dp$$ \[34\]
where
\[ \text{dln}a_1 = (\text{dln}a_1)_p + (\frac{\partial \text{ln}a_1}{\partial T})_p + (\frac{\partial \text{ln}a_1}{\partial p})_T \]

[35]

The terms involving enthalpies and volumes in the solid phase can be written as:
\[ \sum_{i=1}^{C} x'_i H'_i = H^*_s \quad \sum_{i=1}^{C} x'_i V'_i = V^*_s \]

[36]

With eqn [36], the final general solubility equation may then be written:
\[ R \left( \sum_{i=1}^{C} x'_i \text{dln}a_1 = (H^*_s - \sum_{i=1}^{C} x'_i H^*_0) d(T) - (V^*_s - \sum_{i=1}^{C} x'_i V^*_0) dp/T \right) \]

[37]

Note that those components which are not present in both phases do not appear in the solubility equation. However, they do affect the solubility through their effect on the activities of the solutes.

Several applications of eqn [37] (all with pressure held constant) will be discussed below. Other cases will be discussed in individual evaluations.

(a) Solubility as a function of temperature.

Consider a binary solid compound \( A_nB \) in a single solvent \( A \). There is no fundamental thermodynamic distinction between a binary compound of \( A \) and \( B \) which dissociates completely or partially on melting and a solid mixture of \( A \) and \( B \); the binary compound can be regarded as a solid mixture of constant composition. Thus, with \( c = 2 \), \( x'_A = n/(n + l) \), \( x'_B = l/(n + l) \), eqn [37] becomes:
\[ \text{dln}(a_A^n a_B) = \Delta H_{AB}^0 d(1/RT) \]

[38]

where
\[ \Delta H_{AB}^0 = nH_A + H_B - (n + l)H^*_B \]

[39]
is the molar enthalpy of melting and dissociation of pure solid \( A_nB \) to form \( A \) and \( B \) in their reference states. Integration between \( T \) and \( T_0 \), the melting point of the pure binary compound \( A_nB \), gives:
\[ \ln(a_A^n a_B) = \ln(a_A^n a_B)_{T=T_0} - \int_{T_0}^{T} \Delta H_{AB}^0 d(1/RT) \]

[40]

(i) Non-electrolytes

In eqn [32], introduce the pure liquids as reference states. Then, using a simple first-order dependence of \( \Delta H_{AB}^* \) on temperature, and assuming that the activity coefficients conform to those for a simple mixture (8):
\[ \frac{RT \ln f_A}{w} = w x_B \quad \frac{RT \ln f_B}{w} = w x_A \]

[41]

then, if \( w \) is independent of temperature, eqn [32] and [33] give:
\[ \ln(x_B(1-x_B)^n) + \ln\left[ \frac{n^P}{(1+n)^n} \right] = G(T) \]

[42]

where
\[ G(T) = - \left[ \frac{\Delta H_{AB}^*}{R} - T^* \Delta C_P^* \right] \left[ \frac{1}{T} - \frac{1}{T^*} \right] \]

+ \[ \Delta C_P^* \ln(T/T^*) - \frac{\Delta C_P^*}{RT^*} \ln(T/T^*) \]

[43]

where \( \Delta C_P^* \) is the change in molar heat capacity accompanying fusion plus decomposition of the pure compound to pure liquid \( A \) and \( B \) at temperature \( T^* \), (assumed here to be independent of temperature and composition), and \( \Delta H_{AB}^* \) is the corresponding change in enthalpy at \( T = T^* \). Equation [42] has the general form:
\[ \ln(x_B(1-x_B)^n) = A_1 + A_2/(T/K) + A_3 \ln(T/K) + A_4 (x_A^2 + n x_B^2)/(T/K) \]

[44]

If the solid contains only component \( B \), then \( n = 0 \) in eqn [42] to [44].

If the infinite dilution reference state is used, then:
and [39] becomes
\[ \Delta H_{A}^{m} = nH_{A}^{*} + H_{B}^{m} - (n + 1)H_{B}^{*} \]
[46]
where \( \Delta H_{A}^{m} \) is the enthalpy of melting and dissociation of solid compound \( A_{2}B \) to the infinitely dilute reference state of solute \( B \) in solvent \( A \); \( H_{A}^{*} \) and \( H_{B}^{m} \) are the partial molar enthalpies of the solute and solvent at infinite dilution. Clearly, the integral of eqn [32] will have the same form as eqn [35], with \( \Delta H_{A}^{m} \) replacing \( \Delta H_{A}^{*} \), \( \Delta C_{P}^{\infty} \) replacing \( \Delta C_{P}^{*} \), and \( x_{A}^{2} - 1 \) replacing \( x_{A}^{2} \) in the last term.

See (7) and (13) for applications of these equations to experimental data.

(11) Electrolytes

(a) Mole fraction scale

If the liquid phase is an aqueous electrolyte solution, and the solid is a salt hydrate, the above treatment needs slight modification. Using rational mean activity coefficients, eqn [34] becomes:
\[
\ln \left( \frac{x_{B}^{v}(1 - x_{B})^{n}}{(1 + (\nu - 1)x_{B})^{n}} \right) - \ln \left( \frac{n^{n}}{(\nu + 1)^{n}} \right) + \ln \left( \frac{\left(\frac{H_{B}}{T_{A}}\right)^{n}}{\left(\frac{H_{A}}{T_{A}}\right)^{n}} \right)
= - \frac{\Delta H_{A}^{m} - T\Delta C_{P}^{m}}{R} \left\{ \frac{1}{T} - \frac{1}{T^{*}} \right\} + \frac{\Delta C_{P}^{m}}{R} \ln \left( \frac{T}{T^{*}} \right)
\]
[47]
where superscript * indicates the pure salt hydrate. If it is assumed that the activity coefficients follow the same temperature dependence as the right-hand side of eqn [47] (15-17), the thermochemical quantities on the right-hand side of eqn [47] are not rigorous thermodynamic enthalpies and heat capacities, but are apparent quantities only. Data on activity coefficients (11) in concentrated solutions indicate that the terms involving these quantities are not negligible, and their dependence on temperature and composition along the solubility-temperature curve is a subject of current research.

A similar equation (with \( \nu = 2 \) and without the heat capacity terms) or activity coefficients) has been used to fit solubility data for some MOH-H2O systems, where \( M \) is an alkali metal (15); enthalpy values obtained agreed well with known values. The full equation has been deduced by another method in (16) and applied to MCl2-H2O systems in (16) and (17). For a summary of the use of equation [47] and similar equations, see (18).

(2) Molality scale

Substitution of the mean activities on the molality scale in eqn [40] gives:
\[
\nu \ln \left( \frac{\gamma_{m} m_{m}}{\gamma_{-} m_{B}^{*}} \right) - \nu (m_{B}/m_{B}^{*} - 1) - \nu (m_{B} - \phi + 1)
= G(T)
\]
[48]
where \( G(T) \) is the same as in eqn [47], \( m_{B}^{*} = 1/nM_{A} \) is the molality of the anhydrous salt in the pure salt hydrate and \( \gamma_{\pm} \) and \( \phi \) are the mean activity coefficient and the osmotic coefficient, respectively. Use of the osmotic coefficient for the activity of the solvent leads, therefore, to an equation that has a different appearance to [47]; the content is identical. However, while eqn [47] can be used over the whole range of composition \( 0 < x_{B} < 1 \), the molality in eqn [48] becomes infinite at \( x_{B} = 1 \); use of eqn [48] is therefore confined to solutions sufficiently dilute that the molality is a useful measure of composition. The essentials of eqn [48] were deduced by Williamson (19); however, the form used here appears first in the Solubility Data Series. For typical applications (where activity and osmotic coefficients are not considered explicitly, so that the enthalpies and heat capacities are apparent values, as explained above), see (20).

The above analysis shows clearly that a rational thermodynamic basis exists for functional representation of solubility-temperature curves in two-component systems, but may be difficult to apply because of lack of experimental or theoretical knowledge of activity coefficients and partial molar enthalpies. Other phenomena which are related ultimately to the stoichiometric activity coefficients and which complicate interpretation...
Include ion pairing, formation of complex ions, and hydrolysis. Similar considerations hold for the variation of solubility with pressure, except that the effects are relatively smaller at the pressures used in many investigations of solubility.

(b) Solubility as a function of composition.

At constant temperature and pressure, the chemical potential of a saturating solid phase is constant:

$$\mu_{A_B}^* = \mu_{A_B}^{(sln)} = n\mu_A + \mu_B$$

$$= (n\mu_A^* + \nu_+\mu_+^\infty + \nu_-\mu_-^\infty) + nRT \ln f_A x_A$$

$$+ \nu_+RT \ln (\gamma_+ m_+)$$

for a salt hydrate $A_B$ which dissociates to water $(A)$, and a salt $(B)$, one mole of which ionizes to give $\nu_+$ cations and $\nu_-$ anions in a solution in which other substances (ionized or not) may be present. If the saturated solution is sufficiently dilute, $f_A = x_A = 1$, and the quantity $K_B$ in

$$\Delta G^\infty = (\nu_+\mu_+^\infty + \nu_-\mu_-^\infty + n\mu_A^* - \mu_B^*)$$

$$= -RT \ln K_B$$

$$= -\nu RT \ln (\gamma_+ m_+)$$

is called the solubility product of the salt. (It should be noted that it is not customary to extend this definition to hydrated salts, but there is no reason why they should be excluded.) Values of the solubility product are often given on mole fraction or concentration scales. In dilute solutions, the theoretical behavior of the activity coefficients as a function of ionic strength is often sufficiently well known that reliable extrapolations to infinite dilution can be made, and values of $K_B$ can be determined. In more concentrated solutions, the same problems with activity coefficients that were outlined in the section on variation of solubility with temperature still occur. If these complications do not arise, the solubility of a hydrate salt $C_{vA} v_A nH_2O$ in the presence of other solutes is given by eqn (50) as

$$\nu \ln (m_B/m_B(0)) = -\nu \ln (\gamma_+ / \gamma_-(0)) - n \ln (a_A/a_A(0))$$

where $a_A$ is the activity of water in the saturated solution, $m_B$ is the molality of the salt in the saturated solution, and $(0)$ indicates absence of other solutes. Similar considerations hold for nonelectrolytes.

Consideration of complex mixed ligand equilibria in the solution phase is also frequently of importance in the interpretation of solubility equilibria. For nomenclature connected with these equilibria (and solubility equilibria as well) see (21, 22).

(c) Alteration of the dissolution medium for pharmaceuticals

Many substances which are only slightly soluble in water may be made more soluble by the addition of a cosolvent, surface-active agents, or complexing agents.

(i) Addition of a cosolvent. It is frequently necessary to dissolve a quantity of drug in a small volume of liquid so that it may be administered parenterally by injection. If the drug is not sufficiently soluble in water because of its hydrophobicity, the addition of a quantity of water-miscible, but less polar solvent may render the drug soluble in a small quantity of the mixed solvent. Solvents used for this purpose have included propylene glycol, glycerol, ethanol, polyethylene glycol and glycofural. Solubilities of many drug substances in water-organic solvent mixtures have been tabulated by Yalkowsky and Roseman (23).

(ii) Surface-active agents. Another approach to increasing the solubility and rate of dissolution of drug substances is to add a surface-active agent. There is an extensive literature on the application of surfactants and micellar dissolution, which has been summarized recently by Florence (24). Cationic, anionic or neutral surfactants are available. In choosing a surfactant, the possibility of charge-charge interactions between the drug and the surfactant must be considered, as well as the degree of ionization of each species as a function of pH. Micellar dissolution of drugs or additives may protect the dissolved species from hydrolytic degradation by the aqueous solvent. The stability of drugs may therefore be enhanced considerably by the addition of a surfactant. Surfactants may also facilitate the transport of drugs across biological
membranes. Examples of substantially improved bioavailability of drugs under the influence of micellar dissolution have been reported (24).

(111) Other modifications of the dissolution medium. The solubility of weak acid and weak base drugs will usually depend on the pH of the medium. Within reasonable limits for pharmaceutical preparations, pH may be adjusted to obtain the drug in the charged (and usually more soluble) form. The addition of complexing agents such as chelating agents, organic salts, cyclodextrins, or ion-pairing agents may be used to enhance solubility and rate of dissolution. Examples are given in the chapter by A.J. Repta in (3).

The Solid Phase

The definition of solubility permits the occurrence of a single solid phase which may be a pure anhydrous compound, a salt hydrate, a non-stoichiometric compound, or a solid mixture (or solid solution, or "mixed crystals"), and may be stable or metastable. As well, any number of solid phases consistent with the requirements of the phase rule may be present. Metastable solid phases are of widespread occurrence, and may appear as polymorphic (or allotropic) forms or crystal solvates whose rate of transition to more stable forms is very slow. Surface heterogeneity may also give rise to metastability, either when one solid precipitates on the surface of another, or if the size of the solid particles is sufficiently small that surface effects become important. In either case, the solid is not in stable equilibrium with the solution. See (25) for the modern formulation of the effect of particle size on solubility. The stability of a solid may also be affected by the atmosphere in which the system is equilibrated.

Many of these phenomena require very careful, and often prolonged, equilibration for their investigation and elimination. A very general analytical method, the "wet residues" method of Schreinemakers (26), is often used to investigate the composition of solid phases in equilibrium with salt solutions. This method has been reviewed in (27), where [see also (28)] least-squares methods for evaluating the composition of the solid phase from wet residue data (or initial composition data) and solubilities are described. In principle, the same method can be used with systems of other types. Many other techniques for examination of solids, in particular X-ray, optical, and thermal analysis methods, are used in conjunction with chemical analyses (including the wet residues method).

Solid State Manipulation in Pharmaceuticals

(1) Polymorphism. Many drug substances may crystallize in more than one form, a phenomenon called polymorphism. The different modifications (polymorphs) arise because of the relative positions and bonding of the molecules in their crystal lattices; true polymorphs do not differ in chemical composition. Polymorphs of the same substance frequently have different physical properties such as solubility and rate of dissolution. Ultimately, the solubility of all forms will revert to that of the form with the lowest Gibbs energy; the solubility of a less-stable form will thus be an initial solubility. The rate of reversion to the most stable form is often very slow, and a form with higher Gibbs energy may exhibit its higher solubility for hours. This phenomenon may be used to advantage by choosing the polymorph with the desired solubility or rate of dissolution. Examples of polymorphism and methods of characterization have been reviewed by Halebian (29) and Burger (30).

(ii) Crystallinity. In many cases, drug substances may occur in the solid state as amorphous or partly crystalline forms. This is a special case of polymorphism, and may result from rapid precipitation or from freeze-drying. These amorphous or partly crystalline materials are unstable relative to the crystalline form. However, reversion to the crystalline form may be slow, and the less stable forms may be used to enhance solubility and rate of dissolution (31).

(iii) Choice of salt form. Many drug substances are organic salts. In most cases the drug moiety is the organic cation or anion, such as a quaternary ammonium cation or a carboxylate or sulfonate anion. The counterion is frequently an inorganic ion such as sodium or chloride. It is possible to obtain large variations in initial solubility depending on the choice of the salt form of the drug.

COMPILATIONS AND EVALUATIONS

The formats for the compilations and critical evaluations have been standardized for all volumes. A brief description of the data sheets
Introduction

has been given in the FOREWORD; additional explanation is given below.

Guide to the compilations

The format used for the compilations is, for the most part, self-explanatory. The details presented below are those which are not found in the FOREWORD or which are not self-evident.

Components. Each component is listed according to IUPAC or Chemical Abstracts (CA) name and CA Registry Number. The formula is given either in terms of the IUPAC or Hill (32) system and the choice of formula is governed by what is usual for most current users: i.e., IUPAC for inorganic compounds, and Hill system for organic compounds. Components are ordered according to:

(a) saturating components;
(b) non-saturating components in alphanumerical order;
(c) solvents in alphanumerical order.

The saturating components are arranged in order according to a 18-column periodic table with two additional rows:

Columns 1 and 2: H, alkali elements, ammonium, alkaline earth elements
3 to 12: transition elements
13 to 17: boron, carbon, nitrogen groups; chalcogenides, halogens
18: noble gases
Row 1: Ce to Lu
Row 2: Th to the end of the known elements, in order of atomic number.

Salt hydrates are generally not considered to be saturating components since most solubilities are expressed in terms of the anhydrous salt. The existence of hydrates or solvates is carefully noted in the text, and CA Registry Numbers are given where available, usually in the critical evaluation. Mineralogical names are also quoted, along with their CA Registry Numbers, again usually in the critical evaluation.

Original Measurements. References are abbreviated in the forms given by Chemical Abstracts Service Source Index (CASSI). Names originally in other than Roman alphabets are given as transliterated by Chemical Abstracts.

Experimental Values. Data are reported in the units used in the original publication, with the exception that modern names for units and quantities are used; e.g., mass per cent for weight per cent; mol dm⁻³ for molar; etc. Both mass and molar values are given. Usually, only one type of value (e.g., mass per cent) is found in the original paper, and the compiler has added the other type of value (e.g., mole per cent) from computer calculations based on 1983 atomic weights (33).

Errors in calculations and fitting equations in original papers have been noted and corrected, by computer calculations where necessary.

Method. Source and Purity of Materials. Abbreviations used in Chemical Abstracts are often used here to save space.

Estimated Error. If these data were omitted by the original authors, and if relevant information is available, the compilers have attempted to estimate errors from the internal consistency of data and type of apparatus used. Methods used by the compilers for estimating and reporting errors are based on the papers by Ku and Eisenhart (34).

Comments and/or Additional Data. Many compilations include this section which provides short comments relevant to the general nature of the work or additional experimental and thermodynamic data which are judged by the compiler to be of value to the reader.

References. See the above description for Original Measurements.

Guide to the Evaluations

The evaluator's task is to check whether the compiled data are correct, to assess the reliability and quality of the data, to estimate errors where necessary, and to recommend "best" values. The evaluation takes the form of a summary in which all the data supplied by the compiler have been critically reviewed. A brief description of the evaluation sheets is given below.

Components. See the description for the Compilations.

Evaluator. Name and date up to which the literature was checked.
Critical Evaluation

(a) Critical text. The evaluator produces text evaluating all the published data for each given system. Thus, in this section the evaluator reviews the merits or shortcomings of the various data. Only published data are considered; even published data can be considered only if the experimental data permit an assessment of reliability.

(b) Fitting equations. If the use of a smoothing equation is justifiable the evaluator may provide an equation representing the solubility as a function of the variables reported on all the compilation sheets.

(c) Graphical summary. In addition to (b) above, graphical summaries are often given.

(d) Recommended values. Data are recommended if the results of at least two independent groups are available and they are in good agreement, and if the evaluator has no doubt as to the adequacy and reliability of the applied experimental and computational procedures. Data are considered as tentative if only one set of measurements is available, or if the evaluator considers some aspect of the computational or experimental method as mildly undesirable but estimates that it should cause only minor errors. Data are considered as doubtful if the evaluator considers some aspect of the computational or experimental method as undesirable but still considers the data to have some value in those instances where the order of magnitude of the solubility is needed. Data determined by an inadequate method or under ill-defined conditions are rejected. However references to these data are included in the evaluation together with a comment by the evaluator as to the reason for their rejection.

(e) References. All pertinent references are given here. References to those data which, by virtue of their poor precision, have been rejected and not compiled are also listed in this section.

(f) Units. While the original data may be reported in the units used by the investigators, the final recommended values are reported in S.I. units (1, 35) when the data can be accurately converted.

References


September, 1986
R. Cohen-Adad,
Villeurbanne, France
S. Lindenbaum,
Lawrence, Kansas, U.S.A.
J.W. Lorimer,
London, Ontario, Canada
A.N. Paruta,
Kingston, R.I., U.S.A.
R. Piekos,
Gdansk, Poland
M. Salomon,
Fair Haven, New Jersey, U.S.A.
### Table I-1

Quantities Used as Measures of Solubility

Conversion Table for 2-Component Systems Containing Solvent A and Solute B

<table>
<thead>
<tr>
<th></th>
<th>mole fraction $x_B$</th>
<th>mass fraction $w_B$</th>
<th>molality $m_B$</th>
<th>concentration $c_B$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$x_B$</td>
<td>$x_B \frac{1}{1 - M_A(1 - 1/x_B)/M_B}$</td>
<td>$w_B = \frac{1}{1 + M_B(1/w_B - 1)}$</td>
<td>$m_B = \frac{1}{M_B(1/w_B - 1)}$</td>
<td>$c_B = \frac{\rho}{M_B + 1/m_B}$</td>
</tr>
<tr>
<td>$w_B$</td>
<td>$\frac{1}{1 + M_B(1/w_B - 1)}$</td>
<td>$\frac{1}{1 + 1/M_B m_B}$</td>
<td>$\frac{1}{m_B}$</td>
<td>$\frac{\rho}{M_B + 1/m_B}$</td>
</tr>
<tr>
<td>$m_B$</td>
<td>$\frac{1}{1 + 1/m_B M_A}$</td>
<td>$\frac{1}{1 + 1/M_B m_B}$</td>
<td>$m_B$</td>
<td>$M_B + 1/m_B$</td>
</tr>
<tr>
<td>$c_B$</td>
<td>$\frac{1}{1 + (\rho/c_B - M_B)/M_A}$</td>
<td>$\frac{M_B c_B/\rho}{M_A}$</td>
<td>$\frac{1}{\rho/c_B - M_B}$</td>
<td>$c_B$</td>
</tr>
</tbody>
</table>

$\rho = \text{density of solution}$

$M_A, M_B = \text{molar masses of solvent, solute}$

Formulas are given in forms suitable for rapid computation; all calculations should be made using SI base units.
<table>
<thead>
<tr>
<th>Structure</th>
<th>Formula</th>
<th>MW</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Structure 1" /></td>
<td>( \text{H}_2\text{N-}[\text{Ph-SO}_2-\text{NH}] )</td>
<td>238.26</td>
</tr>
<tr>
<td><img src="image2.png" alt="Structure 2" /></td>
<td>( \text{H}_2\text{N-}[\text{Ph-SO}_2-\text{NH}] )</td>
<td>519.30</td>
</tr>
<tr>
<td><img src="image3.png" alt="Structure 3" /></td>
<td>( \text{H}_2\text{N-}[\text{Ph-SO}_2-\text{NH}] )</td>
<td>314.36</td>
</tr>
<tr>
<td><img src="image4.png" alt="Structure 4" /></td>
<td>( \text{H}_2\text{N-}[\text{Ph-SO}_2-\text{NH}] )</td>
<td>267.30</td>
</tr>
<tr>
<td><img src="image5.png" alt="Structure 5" /></td>
<td>( \text{H}_2\text{N-}[\text{Ph-SO}_2-\text{NH}] )</td>
<td>328.39</td>
</tr>
<tr>
<td><img src="image6.png" alt="Structure 6" /></td>
<td>( \text{H}_2\text{N-}[\text{Ph-SO}_2-\text{NH}] )</td>
<td>295.31</td>
</tr>
<tr>
<td><img src="image7.png" alt="Structure 7" /></td>
<td>( \text{H}_2\text{N-}[\text{Ph-SO}_2-\text{NH}] )</td>
<td>358.42</td>
</tr>
<tr>
<td><img src="image8.png" alt="Structure 8" /></td>
<td>( \text{H}_2\text{N-}[\text{Ph-SO}_2-\text{NH}] )</td>
<td>295.31</td>
</tr>
<tr>
<td><img src="image9.png" alt="Structure 9" /></td>
<td>( \text{H}_2\text{N-}[\text{Ph-SO}_2-\text{NH}] )</td>
<td>239.25</td>
</tr>
<tr>
<td><img src="image10.png" alt="Structure 10" /></td>
<td>( \text{H}_2\text{N-}[\text{Ph-SO}_2-\text{NH}] )</td>
<td>267.30</td>
</tr>
<tr>
<td><img src="image11.png" alt="Structure 11" /></td>
<td>( \text{H}_2\text{N-}[\text{Ph-SO}_2-\text{NH}] )</td>
<td>239.25</td>
</tr>
<tr>
<td><img src="image12.png" alt="Structure 12" /></td>
<td>( \text{H}_2\text{N-}[\text{Ph-SO}_2-\text{NH}] )</td>
<td>309.34</td>
</tr>
<tr>
<td><img src="image13.png" alt="Structure 13" /></td>
<td>( \text{H}_2\text{N-}[\text{Ph-SO}_2-\text{NH}] )</td>
<td>309.34</td>
</tr>
<tr>
<td>Structure</td>
<td>M.W.</td>
<td>Structure</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>--------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td><img src="image1.png" alt="Structure 1" /></td>
<td>351.38</td>
<td><img src="image2.png" alt="Structure 2" /></td>
</tr>
<tr>
<td><img src="image3.png" alt="Structure 3" /></td>
<td>267.30</td>
<td><img src="image4.png" alt="Structure 4" /></td>
</tr>
<tr>
<td><img src="image5.png" alt="Structure 5" /></td>
<td>239.25</td>
<td><img src="image6.png" alt="Structure 6" /></td>
</tr>
<tr>
<td><img src="image7.png" alt="Structure 7" /></td>
<td>267.30</td>
<td><img src="image8.png" alt="Structure 8" /></td>
</tr>
<tr>
<td><img src="image9.png" alt="Structure 9" /></td>
<td>254.26</td>
<td><img src="image10.png" alt="Structure 10" /></td>
</tr>
<tr>
<td><img src="image11.png" alt="Structure 11" /></td>
<td>254.26</td>
<td><img src="image12.png" alt="Structure 12" /></td>
</tr>
<tr>
<td><img src="image13.png" alt="Structure 13" /></td>
<td>255.31</td>
<td><img src="image14.png" alt="Structure 14" /></td>
</tr>
<tr>
<td>Structure 1</td>
<td>Structure 2</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td><img src="image1" alt="Structure 1 Image" /></td>
<td><img src="image2" alt="Structure 2 Image" /></td>
<td></td>
</tr>
<tr>
<td>[71119-42-1]</td>
<td>[51203-20-4]</td>
<td></td>
</tr>
<tr>
<td>M.W. = 385.39</td>
<td>M.W. = 271.36</td>
<td></td>
</tr>
<tr>
<td><img src="image3" alt="Structure 1 Image" /></td>
<td><img src="image4" alt="Structure 2 Image" /></td>
<td></td>
</tr>
<tr>
<td>[12286-43-0]</td>
<td>[71119-27-2]</td>
<td></td>
</tr>
<tr>
<td>M.W. = 573.98</td>
<td>M.W. = 301.38</td>
<td></td>
</tr>
<tr>
<td><img src="image5" alt="Structure 1 Image" /></td>
<td><img src="image6" alt="Structure 2 Image" /></td>
<td></td>
</tr>
<tr>
<td>[51203-19-1]</td>
<td>[6138-01-8]</td>
<td></td>
</tr>
<tr>
<td>M.W. = 269.34</td>
<td>M.W. = 305.37</td>
<td></td>
</tr>
<tr>
<td><img src="image7" alt="Structure 1 Image" /></td>
<td><img src="image8" alt="Structure 2 Image" /></td>
<td></td>
</tr>
<tr>
<td>[NOT ASSIGNABLE]</td>
<td>[71119-15-8]</td>
<td></td>
</tr>
<tr>
<td>M.W. = UNSPECIFIED</td>
<td>M.W. = 407.50</td>
<td></td>
</tr>
<tr>
<td><img src="image9" alt="Structure 1 Image" /></td>
<td><img src="image10" alt="Structure 2 Image" /></td>
<td></td>
</tr>
<tr>
<td>[127-76-4]</td>
<td>[32909-92-5]</td>
<td></td>
</tr>
<tr>
<td>M.W. = 297.35</td>
<td>M.W. = 286.32</td>
<td></td>
</tr>
<tr>
<td><img src="image11" alt="Structure 1 Image" /></td>
<td><img src="image12" alt="Structure 2 Image" /></td>
<td></td>
</tr>
<tr>
<td>[116-43-8]</td>
<td>[84930-17-6]</td>
<td></td>
</tr>
<tr>
<td>M.W. = 355.38</td>
<td>M.W. = 328.36</td>
<td></td>
</tr>
<tr>
<td><img src="image13" alt="Structure 1 Image" /></td>
<td><img src="image14" alt="Structure 2 Image" /></td>
<td></td>
</tr>
<tr>
<td>[515-59-3]</td>
<td>[79962-97-3]</td>
<td></td>
</tr>
<tr>
<td>M.W. = 269.34</td>
<td>M.W. = 328.36</td>
<td></td>
</tr>
<tr>
<td><img src="image15" alt="Structure 1 Image" /></td>
<td><img src="image16" alt="Structure 2 Image" /></td>
<td></td>
</tr>
<tr>
<td>[71119-13-6]</td>
<td>[84930-18-7]</td>
<td></td>
</tr>
<tr>
<td>M.W. = 311.37</td>
<td>M.W. = 370.40</td>
<td></td>
</tr>
<tr>
<td>Structure 1</td>
<td>Structure 2</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td><img src="16808-29-4" alt="Image 1" /></td>
<td><img src="80-43-2" alt="Image 2" /></td>
<td></td>
</tr>
<tr>
<td>M.W. = 256.30</td>
<td>M.W. = 298.38</td>
<td></td>
</tr>
<tr>
<td><img src="144-82-1" alt="Image 3" /></td>
<td><img src="71119-31-8" alt="Image 4" /></td>
<td></td>
</tr>
<tr>
<td>M.W. = 270.32</td>
<td>M.W. = 312.40</td>
<td></td>
</tr>
<tr>
<td><img src="24342-31-2" alt="Image 5" /></td>
<td><img src="535-65-9" alt="Image 6" /></td>
<td></td>
</tr>
<tr>
<td>M.W. = 377.18</td>
<td>M.W. = 312.40</td>
<td></td>
</tr>
<tr>
<td><img src="39719-87-4" alt="Image 7" /></td>
<td><img src="71119-30-7" alt="Image 8" /></td>
<td></td>
</tr>
<tr>
<td>M.W. = 312.36</td>
<td>M.W. = 326.43</td>
<td></td>
</tr>
<tr>
<td><img src="94-19-9" alt="Image 9" /></td>
<td><img src="71119-29-4" alt="Image 10" /></td>
<td></td>
</tr>
<tr>
<td>M.W. = 284.35</td>
<td>M.W. = 326.43</td>
<td></td>
</tr>
<tr>
<td><img src="1037-51-0" alt="Image 11" /></td>
<td><img src="71119-25-0" alt="Image 12" /></td>
<td></td>
</tr>
<tr>
<td>M.W. = 326.39</td>
<td>M.W. = 271.31</td>
<td></td>
</tr>
<tr>
<td><img src="71119-32-9" alt="Image 13" /></td>
<td><img src="13269-73-3" alt="Image 14" /></td>
<td></td>
</tr>
<tr>
<td>M.W. = 298.38</td>
<td>M.W. = 253.28</td>
<td></td>
</tr>
</tbody>
</table>
### COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-lH-imidazol-2-yl-; C₉H₇ON₄S₂; [17103-46-7]
2. Water; H₂O; [7732-18-5]

### ORIGINAL MEASUREMENTS:

Anderson, G.W.; Faith, H.E.; Marson, H.W; Winnek, P.S.; Roblin, R.O., Jr.

### VARIABLES:

One temperature: 37°C

### EXPERIMENTAL VALUES:

Solubility of 4-amino-N-lH-imidazol-2-ylbenzenesulfonamide in water at 37°C is 178 mg/100 cm³ solution (7.47 x 10⁻³ mol dm⁻³, compiler).

### METHOD/APPARATUS/PROCEDURE:

Excess sulfonamide in water was heated and stirred on a steam bath for 30 min. The suspension was then agitated for 24 h in a thermostat. A sample of the satd soln was withdrawn through a glass filter, dried, and analyzed by the Marshall method (1) using a General Electric recording spectrophotometer for comparing the colors developed with those of the standards.

### SOURCE AND PURITY OF MATERIALS:

The sulfonamide, mp 262°C (cor) was prepd by the authors. Anal: %C 45.8 (calcd 45.4); %H 4.6 (4.2); %N 23.7 (23.5).

Purity of the water was not specified.

### ESTIMATED ERROR:

Nothing specified.

### REFERENCES:

**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)- (sulfaphenazole); $\text{C}_{15}\text{H}_{14}\text{N}_{4}\text{O}_{2}\text{S}$; [526-08-9]
2. Water; $\text{H}_2\text{O}$; [7732-18-5]

**ORIGINAL MEASUREMENTS:**


**VARIABLES:**

One temperature: 30°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfaphenazole in water at 30°C is 0.48 mmol/L (0.15 g dm$^{-3}$, compiler).

**METHOD/APPARATUS/PROCEDURE:**

Sulfaphenazole (0.5 g) was placed in an L-shaped tube together with 20 ml of water. The mixt was shaken in a thermostat until equilibrium was attained. The sulfaphenazole was assayed in the supernatant spectrophotometrically at 545 nm on a Beckman DU spectrophotometer. The results were taken from a calibration graph.

**SOURCE AND PURITY OF MATERIALS:**

Nothing specified

**ESTIMATED ERROR:**

Soly: not specified
Temp: ±1°C (authors)

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)- (sulfaphenazole); C$_{15}$H$_{14}$N$_4$O$_2$S; [526-08-9]
(2) Hydrochloric acid; HCl; [7647-01-0]
(3) Water; H$_2$O; [7732-18-5]

VARIABLES:
One temperature: 37°C

EXPERIMENTAL VALUES:

Solubility of sulfaphenazole in 0.1N HCl at 37°C is 1.199 mg/ml (3.814 x 10$^{-3}$ mol dm$^{-3}$, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A centrifuge tube contg 30 ml of 0.1N HCl and 0.5-3.0 g of the sulfaphenazole powder was tightly sealed and shaken at 37°C. The concn of the dissolved drug was detd spectrophotometrically following filtration (type EH, pore size 0.5 µm), and the procedure was repeated every 24 h until a const concn was obtained. A Millipore filter was used for filtration.

SOURCE AND PURITY OF MATERIALS:
Comm available 500-mg uncoated tablets of sulfaphenazole were used. Hydrochloric acid was of reagent grade.

ESTIMATED ERROR:
Nothing specified

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)- (sulfaphenazole); C_{15}H_{14}N_{4}O_{2}S; [526-08-9]
(2) Phosphoric acid, disodium salts; Na_{2}HPO_{4}; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH_{2}PO_{4}; [7778-77-0]
(4) Water; H_{2}O; [7732-18-5]

VARIABLES:
One temperature: 20°C; one pH: 7.4

EXPERIMENTAL VALUES:
Solubility of sulfaphenazole in a M/15 Sörensen buffer solution (pH 7.4) at 20°C is 130 mg% (4.14 x 10^{-3} mol dm^{-3} solution, compiler).

ORIGINAL MEASUREMENTS:
Riess, W.

PREPARED BY:
R. Piekos

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sörensen buffer solns of pH varying between 7 and 8 were prep'd, satd with sulfaphenazole at 20°C, their pH was measured at equilibrium, and the sulfaphenazole was assayed colorimetrically. The measured pH values were plotted against conen, and the soly at pH 7.4 was detd by interpolation (personal communication).

SOURCE AND PURITY OF MATERIALS:
Nothing specified

ESTIMATED ERROR:
Nothing specified

REFERENCES:
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)- (sulfaphenazole);  
   C<sub>15</sub>H<sub>14</sub>N<sub>4</sub>O<sub>2</sub>S; [526-08-9]

2. Phosphoric acid, disodium salt;  
   Na<sub>2</sub>HPO<sub>4</sub>; [7558-94-4]

3. Phosphoric acid, monopotassium salt;  
   KH<sub>2</sub>PO<sub>4</sub>; [7778-77-0]

4. Water; H<sub>2</sub>O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**


**PREPARED BY:**

R. Piekos

**VARIABLES:**

One temperature: 30°C; one pH. 7.4

**EXPERIMENTAL VALUES:**

Solubility of sulfaphenazole in a phosphate buffer solution of pH 7.4<sup>a</sup>  
(μ = 0.17) at 30°C is 6.63 mmol/L (2.01 g dm<sup>-3</sup>, compiler).

<sup>a</sup>At the end of experiment the pH was 7.1

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

Sulfaphenazole (0.5 g) was placed in an L-shaped tube together with 20 ml of the buffer soln. The mixt was shaken in a thermostat until equilibrium was attained. The sulfaphenazole was assayed in the supernatant spectrophotometrically at 545 nm on a Beckman DU spectrophotometer. The results were taken from a calibration graph.

**SOURCE AND PURITY OF MATERIALS:**

Nothing specified

**ESTIMATED ERROR:**

Soly and pH: not specified  
Temp: ±1°C (authors)

**REFERENCES:**
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-(sulfaphenazole); C_{15}H_{14}N_{4}O_{2}S; [526-08-9]

(2) Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]

(3) 1,2,3-Propanetricarboxylic acid, 2-hydroxy- (citric acid); C_{6}H_{8}O_{7}; [77-92-9]

(4) Water; H_{2}O; [7732-18-5]

VARIES:

pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility at 37°C, µg/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>...</td>
</tr>
<tr>
<td>6</td>
<td>...</td>
</tr>
<tr>
<td>7</td>
<td>...</td>
</tr>
<tr>
<td>8</td>
<td>...</td>
</tr>
</tbody>
</table>

METHOD/APPARATUS/PROCEDURE:

The soly of sulfaphenazole in McIlvaine's Na_{2}HPO_{4} - citric acid buffer solns was detd under agitation at 37°C. No details were given.

ORIGINAL MEASUREMENTS:


PREPARED BY:

R. Piekos

AUXILIARY INFORMATION

SOURCE AND PURITY OF MATERIALS:

Nothing specified

ESTIMATED ERROR:

Nothing specified

REFERENCES:
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGinaL MEaSUREMENTS:</th>
</tr>
</thead>
</table>
| (1) Benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)- (sulfaphenazole); C_{15}H_{14}N_{4}O_{2}S; [526-08-9] | Riess, W.  
| (2) Methane, trichloro- (chloroform); CHCl_{3}; [67-66-3] | |

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 20°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

EXPERIMENTAL VALUES:

Solubility of sulfaphenazole in chloroform at 20°C is 247 mg% (7.86 x 10^{-3} mol dm^{-3} solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Nothing specified

SOURCE AND PURITY OF MATERIALS:

Nothing specified

ESTIMATED ERROR:

Nothing specified

REFERENCES:
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)- (sulfaphenazole); 
   C\textsubscript{15}H\textsubscript{14}N\textsubscript{4}O\textsubscript{2}S; [526-08-9]
2. Methane, trichloro- (chloroform); 
   CHCl\textsubscript{3}; [67-66-3]

**ORIGINAL MEASUREMENTS:**


**VARIABLES:**

One temperature: 30°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfaphenazole in chloroform at 30°C is 9.97 mmol/L  
(3.01 g dm\textsuperscript{-3}, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

Sulfaphenazole (0.5 g) was placed in an L-shaped tube together with 20 ml of chloroform. The mixt was shaken in a thermostat until equilibrium was attained. The sulfaphenazole was assayed in the supernatant spectrophotometrically at 545 nm on a Beckman DU spectrophotometer. The results were taken from a calibration graph.

**SOURCE AND PURITY OF MATERIALS:**

Nothing specified

**ESTIMATED ERROR:**

Soly: not specified  
Temp: ±1°C (authors)

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3-methyl-1-phenyl-1H-pyrazol-5-yl)-(sulfamethylphenazole); C_{16}H_{16}N_{4}O_{2}S; [852-19-7]
(2) Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH_{2}PO_{4}; [7778-77-0]
(4) Water; H_{2}O; [7732-18-5]

VARIABLES:
One temperature: 20°C; one pH: 7.4

EXPERIMENTAL VALUES:

Solubility of sulfamethylphenazole in a M/15 Sörensen buffer solution (pH 7.4) at 20°C is 63 mg% (2.0 x 10^{-3} mol dm^{-3} solution, compiler).

ORIGINAL MEASUREMENTS:
Riess, W.
3rd, Stuttgart 1963, 1, 627-32

PREPARED BY:
R. Piekos

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sörensen buffer solns of pH varying between 7 and 8 were prepd, satd with sulfamethylphenazole at 20°C, their pH was measured at equilibrium, and the sulfamethylphenazole was assayed colorimetrically. The measured pH values were plotted against concn, and the solv at pH 7.4 was detd by interpolation (personal communication).

SOURCE AND PURITY OF MATERIALS:
Nothing specified

ESTIMATED ERROR:
Nothing specified

REFERENCES:
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-(3-methyl-1-phenyl-1H-pyrazol-5-yl)-(sulfamethylphenazole); C_{16}H_{16}N_{4}O_{2}S [852-19-7]

(2) Methane, trichloro- (chloroform); CHCl_3; [67-66-3]

VARIABLES:

One temperature: 20°C

EXPERIMENTAL VALUES:

Solubility of sulfamethylphenazole in chloroform at 20°C is 363 mg% (1.15 x 10^{-2} mol dm^{-3} solution, compiler).

ORIGINAL MEASUREMENTS:

Riess, W.

PREPARED BY:

R. Piekos

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Nothing specified

SOURCE AND PURITY OF MATERIALS:

Nothing specified

ESTIMATED ERROR:

Nothing specified

REFERENCES:
COMPONENTS: ORIGINAL MEASUREMENTS:

(1) Benzenesulfonamide, 4-amino-N-(1-phenyl-2,3-dimethyl-5-oxopyrazol-4-yl)-; C_{17}H_{18}N_{4}O_{3}S; [71119-16-9]

Roblin, R.O., Jr.; Williams, J.H.; Winnek, P.S.; English, J. P.


(2) Water; H_{2}O; [7732-18-5]

VARIABLES:

One temperature: 37°C

EXPERIMENTAL VALUES:

Solubility of 4-amino-N-(1-phenyl-2,3-dimethyl-5-oxopyrazol-4-yl)benzenesulfonamide in water at 37°C is 15.6 mg/100 cm³ solution (4.35 x 10^{-4} mol dm^{-3}, compiler).

PREPARED BY:

R. Piekos

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Excess sulfonamide in water was heated and stirred on a steam bath for 30 min. The suspension was then agitated for 24 h in a thermostat at 37°C. A sample of the satd soln was withdrawn through a glass filter, dild, and analyzed by the Marshall method (1) using a General Electric recording spectrophotometer for comparing the colors developed with those of the standards.

SOURCE AND PURITY OF MATERIALS:

The sulfonamide, mp 260-1°C (dec, cor), was prepd by the authors. Anal: %C 57.5 (calcd 57.0); %H 5.1 (5.0); %N 16.1 (15.6). Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified

REFERENCES:

COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-1H-1,2,4-triazol-3-yl-; C₈H₉NSO₂S; [51732-39-9]
(2) Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:
J. Am. Chem. Soc. 1942, 64, 2902-5.

VARIABLES:
One temperature: 37°C

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

Solubility of 4-amino-N-1H-1,2,4-triazol-3-ylbenzenesulfonamide in water at 37°C is 60 mg/100 cm³ solution (2.5 x 10⁻³ mol dm⁻³, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Excess sulfonamide in water was heated and stirred on a steam bath for 30 min. The suspension was then agitated for 24 h in a thermostat. A sample of the satd soln was withdrawn through a glass filter, dild, and analyzed by the Marshall method (1) using a General Electric recording spectrophotometer for comparing the colors developed with those of the standards.

SOURCE AND PURITY OF MATERIALS:
The sulfonamide, mp 195-6°C (cor), was prepd by the authors. Anal: %C 40.6 (calcd 40.2); %H 3.8 (3.8); %N 29.1 (29.3).
Purity of the water was not specified.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAl MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-4H-1,2,4-triazol-4-yl-; C₈H₉N₅O₂S; [17103-50-3]</td>
<td>Anderson, G. W.; Faith, H. E.; Marson, H. W.; Winnek, P. S.; Roblin, R. O., Jr.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 37°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

EXPERIMENTAL VALUES:

Solubility of 4-amino-N-4H-1,2,4-triazole-4-ylbenzenesulfonamide in water at 37°C is 216 mg/100 cm³ solution (9.03 x 10⁻³ mol dm⁻³, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Excess sulfonamide in water was heated and stirred on a steam bath for 30 min. The suspension was then agitated for 24 h in a thermostat. A sample of the satd soln was withdrawn through a glass filter, dild, and analyzed by the Marshall method (1) using a General Electric recording spectrophotometer for comparing the colors developed with those of the standards.

SOURCE AND PURITY OF MATERIALS:
The sulfonamide, mp 237°C (cor) was prepd by the authors. Anal: %C 40.1 (calc'd 40.2); %H 3.8 (3.8); %N 29.4 (29.3). Purity of the water was not specified.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole) 
C_{10}H_{11}N_{3}O_{3}S; [723-46-6]
(2) Water
(3) Aqueous HCl; (4) Aqueous NaOH
(5) Aqueous ethanol
(6) Methanol

EVALUATOR:
Anthony N. Paruta
Department of Pharmaceutics
University of Rhode Island
Kingston, Rhode Island, USA
and
Ryszard Piekos
Faculty of Pharmacy, University of Gdansk
Gdansk, Poland 1986

CRITICAL EVALUATION:

The aqueous solubility data on the above compound are summarized in Table I. Yamazaki's (2) value was the only value available at 303K, and is not considered further. It is lower than those at 298K (4,6), thus probably unreasonable. Rudy and Senkowski (4) and Shah et al. (6) give identical values for the aqueous solubility at 298K. The solubility values can thus be given as 2 x 10^{-3} mol dm^{-3} in water at 298K. Kitao et. al. (3) determined the solubility at 310K at a pH value of 4. Since there are no concurring values (1,5) no recommended value can be given for this temperature. The value of Kitao et al. (3) is somewhat similar to that of Ghanem et al. (5), which is interesting since it would be expected that a broad invariant solubility isotherm over a span of pH values should exist. Thus, even though these values are similar, the solubility suggested by Ghanem et al. (5) is probably valid, and can be proposed as the tentative value.

Table I: Solubility of Sulfamethoxazole in water at various temperatures

<table>
<thead>
<tr>
<th>Reference</th>
<th>298K</th>
<th>303K</th>
<th>310K</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-</td>
<td>-</td>
<td>4.11</td>
</tr>
<tr>
<td>2</td>
<td>-</td>
<td>1.59</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>-</td>
<td>-</td>
<td>2.48 (pH=4)</td>
</tr>
<tr>
<td>4</td>
<td>2.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>-</td>
<td>-</td>
<td>2.37</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

For ampholites of this type, solubility can be enhanced by the addition of either acids or bases. The condition produce a more water soluble cationic species (protonation) under acidic conditions, and the more water soluble anionic form under basic conditions at high pH. In two reports (7,8), the solubility was determined in 0.1N HCl both at 298K and 310K. Ogata et al. (7) records a value of 1.24 x 10^{-2} mol dm^{-3} in 0.1N HCl at 310K which is 6.2 times the solubility in water. Shah et al. (8) give a value of 1 x 10^{-4} mol dm^{-3} at a pH = 1, which is clearly incorrect being only a small fraction of the solubility in water (about 5%). However, at a concentration of 0.84N HCl (pH = 0.076) at 298K, a value of 1.12 x 10^{-2} mol dm^{-3} is reported which is in line with the value of Ogata et al. (7) being about 5.6 times the solubility in water. The value of Shah et al. (8) in 0.84N HCl is some 95 times greater than that in 0.1N HCl. In this context it might be instructive to point out the trend (magnitude enhancement) by comparing the solubility of sulfamethoxazole in different systems. The recommended values at 298K are 2 x 10^{-3} mol dm^{-3} in water, 63 x 10^{-3} mol dm^{-3} in 0.1N NaOH, 149 x 10^{-3} mol dm^{-3} in 95% ethanol in water, and 350 x 10^{-3} mol dm^{-3} in methanol. There is a 31 fold increase in solubility in 0.1N NaOH no doubt due to the formation of the anionic form of the compound which has a much higher aqueous solubility. There is a dramatic shift in pH from near neutrality to pH = 13, a strong alkaline solution that forms a water soluble sodium salt of this compound. In methanol, there is a 175 fold increase in solubility due to the semipolar nature of solute and solvent. In 95% ethanol in water (10-12) there is about a 75 fold increase in solubility. The enhancements are quite striking and illustrate the significant latitude that can be used. The solubility of this compound was given by Rudy and Senkowski (9) and Shah et al. (8) in 1973 and 1981 respectively in excellent agreement and a recommended value of 6.3 x 10^{-2} mol dm^{-3} can be given in aqueous 0.1N NaOH solution at 298K. Further, the values of solubility in methanol were given by these workers (8,9) and were also in excellent agreement and is given as 0.35 mol dm^{-3} at 298K. The recommended value in 95% ethanol in water is 0.13 mol dm^{-3} at 298K.

REFERENCES:

REFERENCES: Continuation


COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl) - (sulfamethoxazole); 
C₁₀H₁₁N₃O₃S; [723-46-6]
(2) Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:
J. Am. Chem. Soc. 1942, 64, 2902-5.

VARIABLES:
One temperature: 37°C

EXPERIMENTAL VALUES:

Solubility of sulfamethoxazole in water at 37°C is 104 mg/100 cm³ 
solution ( 4.11 x 10⁻³ mol dm⁻³, compiler).

PREPARED BY:
R. Piekos

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Excess sulfonamide in water was heated and 
stirred on a steam bath for 30 min. The 
suspension was then agitated for 24 h in 
a thermostat. A sample of the satd soln 
was withdrawn through a glass filter, dild, 
and analyzed by the Marshall method (1) 
using a General Electric recording 
spectrophotometer for comparing the colors 
developed with those of the standards.

SOURCE AND PURITY OF MATERIALS:
The sulfonamide, mp 169-70°C (cor) was 
prepd by the authors. Anal: %C 47.4 
(calc 47.4); %H 4.2 (4.4); %N 16.5 
(16.6).
Purity of the water was not specified.

ESTIMATED ERROR:
Nothing specified

REFERENCES:
### Components:

1. Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfisomezole)*; 
   \( \text{C}_{10}\text{H}_{11}\text{N}_{3}\text{O}_{3}\text{S} \); \( [723-46-6] \)
2. Water; \( \text{H}_{2}\text{O} \); \( [7732-18-5] \)

### Original Measurements:

Yamazaki, M.; Aoki, M.; Kamada, A.;

### Variables:

One temperature: 30°C

### PREPARED BY:

R. Piekos

### Experimental Values:

Solubility of sulfisomezole* in water at 30°C is 1.59 mmol/L 
(0.403 g dm\(^{-3}\), compiler).

*Another common trivial name is sulfamethoxazole.

### Method/Apparatus/Procedure:

Sulfisomezole* (0.5 g) was placed in an L-shaped tube together with 20 ml of water. 
The mixt was shaken in a thermostat until equilibrium was attained. The sulfisomezole* 
was assayed in the supernatant spectro-photometrically at 545 nm on a Beckman DU spectrophotometer. The results were taken from a calibration graph.

### Source and Purity of Materials:

Nothing specified

### Estimated Error:

Soly: not specified
Temp: ±1°C (authors)

### REFERENCES:
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Water; H(_2)O; [7732-18-5]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 37°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility of sulfamethoxazole in water at 37°C is 2.48 mmol dm(^{-3}) solution.</td>
</tr>
</tbody>
</table>

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
Soly was detd by continuously adjusting the pH of the aq soln to 4 with 0.05N NaOH. The concn. of sulfamethoxazole was detd by diazotization.

**SOURCE AND PURITY OF MATERIALS:**
Comm available sulfamethoxazole (source not specified) was used as supplied. Deionized water was used.

**ESTIMATED ERROR:**
Soly: not specified
Temp: ±1°C (authors).

**REFERENCES:**
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); 
C_{10}H_{11}N_3O_3S; [723-46-6]

(2) Water; H_2O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Rudy, B.C.; Senkowski, B.Z.

VARIABLES:

One temperature* 25°C

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfamethoxazole in water at 25°C is 0.5 mg/ml 
(2.0 x 10^-3 mol dm^-3, compiler). a

aThe temperature and all auxiliary information was given by 
Edward A. MacMullan from Roche Products Inc., Manati, P.R., in 
a personal communication.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An excess of solute was equilibrated with 
the solvent overnight at const temp. 
(25°C) while being agitated with a 60 cycle 
vibrator (VIBROMIXER). A portion of the 
clear supernatant soln was then taken and 
its concn was detd by uv spectrophotometry 
after suitable diln.

SOURCE AND PURITY OF MATERIALS:
The sulfamethoxazole was of reference 
standard quality equivalent to USP. 
The distd and deionized water of high 
resistivity was used.

ESTIMATED ERROR:

Soly: precision ±1% (MacMullan) 
Temp: not specified

REFERENCES:
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Water; H₂O; [7732-18-5]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 37°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility of sulfamethoxazole in water at 37°C is 0.6 g litre⁻¹ (2 x 10⁻³ mol dm⁻³, compiler).</td>
</tr>
</tbody>
</table>

**METHOD/APPARATUS/PROCEDURE:**

An excess of sulfamethoxazole was added to 15 ml of water in a 30-ml glass stoppered bottle which was rotated on a water bath at 37°C until equilibrium was attained. The sample was filtered and the sulfonamide was assayed spectrophotometrically at 265 nm after dilg with 0.1M HCl. A coulometric assay gave similar results.

**SOURCE AND PURITY OF MATERIALS:**

Sulfamethoxazole was from Kahira Pharm and Chem Ind Co. Egypt. Purity of the water was not specified.

**ESTIMATED ERROR:**

Soly: detns were carried out at least in duplicate (authors).

Temp: ± 1°C (authors).

**REFERENCES:**

<table>
<thead>
<tr>
<th>AUXILIARY INFORMATION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Source and purity of materials:</td>
</tr>
<tr>
<td></td>
<td>Sulfamethoxazole was from Kahira Pharm and Chem Ind Co. Egypt. Purity of the water was not specified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Estimated error:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soly: detns were carried out at least in duplicate (authors).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>REFERENCES:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C_{10}H_{11}N_3O_3S; [723-46-6]
2. Water; H_2O; [7732-18-5]

### ORIGINAL MEASUREMENTS:
Shah, N.H.; Lazarus, J.H.; Sheth, P.R.; Jarowski, C.I.

### VARIABLES:
One temperature: 25℃

### EXPERIMENTAL VALUES:

Solubility of sulfamethoxazole in water at 25℃ is 0.5 mg/ml
(2 x 10^{-3} mol dm^{-3}, compiler).

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**
The solubility of sulfamethoxazole was determined by the method specified in USP XX (1).

**SOURCE AND PURITY OF MATERIALS:**
Sulfamethoxazole was a research compd purchased from Hoffman - LaRoche, Nutley, N.J. Its purity was not specified.
The purity of water was not specified.

**ESTIMATED ERROR:**
Nothing specified

**REFERENCES:**
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C\textsubscript{10}H\textsubscript{11}N\textsubscript{3}O\textsubscript{3}S; [723-46-6]
2. Hydrochloric acid; HCl; [7647-01-0]
3. Water; H\textsubscript{2}O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**


**VARIABLES:**

One temperature: 37°C

**EXPERIMENTAL VALUES:**

Solubility of sulfamethoxazole in 0.1N HCl at 37°C is 3.140 mg/ml (1.240 x 10\textsuperscript{-2} mol dm\textsuperscript{-3}, compiler).

**PREPARED BY:**

R. Piekos

**METHOD/APPARATUS/PROCEDURE:**

A centrifuge tube containing 30 ml of 0.1N HCl and 0.5-3.0 g of the sulfamethoxazole powder was tightly sealed and shaken at 37°C. The concn of the dissolved drug was detd spectrophotometrically following filtration through a Millipore filter (type EH, pore size 0.5 μm), and the procedure was repeated every 24 h until a const concn was obtained.

**SOURCE AND PURITY OF MATERIALS:**

Comm available 500-mg uncoated tablets of sulfamethoxazole were used.

Hydrochloric acid was of reagent grade.

**ESTIMATED ERROR:**

Nothing specified

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C₁₀H₁₁N₃O₃S; [723-46-6]
(2) Hydrochloric acid; HCl; [7647-01-0]
(3) Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Shah, N.H.; Lazarus, J.H.; Sheth, P.R.; Jarowski, C.I.

VARIABLES:
Concentration of HCl

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Concentration of HCl, N</th>
<th>Solubility at 25°C mg/ml</th>
<th>Solubility at 25°C mol dm⁻³ a</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0.03</td>
<td>1 x 10⁻⁴</td>
</tr>
<tr>
<td>0.84</td>
<td>2.85</td>
<td>1.12 x 10⁻²</td>
</tr>
</tbody>
</table>

*Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The solubility of sulfamethoxazole was determined by the method specified in USP XX (1).

SOURCE AND PURITY OF MATERIALS:
Sulfamethoxazole was a research compd purchased from Hoffman – LaRoche, Nutley, N.J. Its purity was not specified.
The source and purity of hydrochloric acid was not specified.

ESTIMATED ERROR:
Nothing specified

REFERENCES:
**COMPONENTS:**  
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C₁₀H₁₁N₃O₃S; [ 723-46-6 ]  
(2) Sodium hydroxide; NaOH; [1310-73-2]  
(3) Water; H₂O; [ 7732-18-5 ]

**ORIGINAL MEASUREMENTS:**  
Rudy, B.C.; Senkowski, B.Z.  
*Anal. Profiles Drug Subst.*  
1973, 2, 467-86.

**VARIABLES:**  
One temperature: 25°C

**PREPARED BY:**  
R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfamethoxazole in a 0.1N NaOH solution at 25°C is 16.0 mg/ml (6.32 x 10⁻² mol dm⁻³, compiler).a

*The temperature and all auxiliary information was given by Edward A. MacMullan from Roche Products Inc., Manati, P.R., in a personal communication.*

**METHOD/APPARATUS/PROCEDURE:**  
An excess of solute was equilibrated with the solvent overnight at const temp (25°C) while being agitated with a 60 cycle vibrator (VIBROMIXER). A portion of the clear supernatant solution was then taken and its concn was detd by uv spectrophotometry after suitable diln.

**SOURCE AND PURITY OF MATERIALS:**  
The sulfamethoxazole was of reference standard quality equivalent to USP. Reagent grade NaOH was used. The distd and deionized water of high resistivity was used.

**ESTIMATED ERROR:**  
Soly: precision ±1% (MacMullan)  
Temp: not specified

**REFERENCES:**
## COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl) (sulfamethoxazole); 
   \[\text{C}_{10}\text{H}_{11}\text{N}_3\text{O}_3\text{S}; [723-46-6]\]

2. Sodium hydroxide; \(\text{NaOH}; [1310-73-2]\)

3. Water; \(\text{H}_2\text{O}; [7732-18-5]\)

## VARIABLES:

One temperature: \(25^\circ\text{C}\)

## ORIGINAL MEASUREMENTS:

Shah, N.H.; Lazarus, J.H.; Sheth, P.R.; Jarowski, C.I.


## EXPERIMENTAL VALUES:

Solubility of sulfamethoxazole in a 0.1N NaOH solution at \(25^\circ\text{C}\) is 16 mg/ml \((6.3 \times 10^{-2} \text{ dm}^{-3}\), compiler).

## METHOD/APPARATUS/PROCEDURE:

The solubility of sulfamethoxazole was determined by the method specified in USP XX (1).

## SOURCE AND PURITY OF MATERIALS:

Sulfamethoxazole was a research compd purchased from Hoffman – LaRoche, Nutley, N.J. Its purity was not specified.

The source and purity of NaOH and water was not specified.

## ESTIMATED ERROR:

Nothing specified

## REFERENCES:

<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Sodium chloride; NaCl; [7647-14-5]</td>
<td></td>
</tr>
<tr>
<td>(3) Water; H₂O; [7732-18-5]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 37°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

EXPERIMENTAL VALUES:

Solubility of sulfamethoxazole in a 0.9% NaCl solution at 37°C is 0.61 mg/ml (2.4 x 10⁻³ mol dm⁻³, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An excess amt of powdered sulfamethoxazole was shaken well at 37°C with a 0.9% NaCl soln until attaining satn. The undissolved crystals were removed by filtration through a G5 glass filter or by centrifugation, and the concn of solute in the filtrate or supernatant was assayed spectrophotometrically at 267 nm, after diln with EtOH - H₂O (1:1, v/v), using a Perkin Elmer UV-VIS spectrophotometer (Hitachi Co., Ltd., Tokyo)

SOURCE AND PURITY OF MATERIALS:
Sulfamethoxazole was synthesized by the authors and was of medicinal grade. The remaining materials were of anal or reagent grade.

ESTIMATED ERROR:
Nothing specified

REFERENCES:
### COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl) - (sulfamethoxazole); 
   \( \text{C}_{10}\text{H}_{11}\text{N}_{3}\text{O}_{3}\text{S} \); [723-46-6]
2. Phosphoric acid, disodium salt 
   \( \text{Na}_2\text{HPO}_4 \); [7558-94-4]
3. Phosphoric acid, monopotassium salt; 
   \( \text{KH}_2\text{PO}_4 \); [7778-77-0]
4. Water; \( \text{H}_2\text{O} \); [7732-18-5]

### ORIGINAL MEASUREMENTS:

Riess, W. 

### PREPARED BY:

R. Piekos

### VARIABLES:

One temperature: 20°C; one pH: 7.4

### EXPERIMENTAL VALUES:

Solubility of sulfamethoxazole in a M/15 Sørensen buffer solution 
(pH 7.4) at 20°C is 930 mg% (3.67 \( \times \) \( 10^{-2} \) mol dm\(^{-3} \) solution, compiler).

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**

Sørensen buffer soins of pH varying between 7 and 8 were prepd, satd with sulfamethoxazole at 20°C, their pH was measured at equilibrium, and the sulfamethoxazole was assayed colorimetrically. The measured pH values were then plotted against concn, and the soly at pH 7.4 was detd by interpolation (personal communication).

**SOURCE AND PURITY OF MATERIALS:**

Nothing specified

**ESTIMATED ERROR:**

Nothing specified

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfisomezole)*; C_{10}H_{11}N_{3}O_{8}; [723-46-6]
(2) Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH_{2}PO_{4}; [7778-77-0]
(4) Water; H_{2}O; [7732-18-5]

ORIGINAL MEASUREMENTS:

PREPARED BY:
R. Piekos

VARIABLES:
One temperature: 30°C; one pH: 7.4

EXPERIMENTAL VALUES:

Solubility of sulfisomezole* in a phosphate buffer solution of pH 7.4 is 20.7 mmol/L (5.24 g dm^{-3}, compiler).

a At the end of experiment the pH was 6.9

* Another common trivial name is sulfamethoxazole.

METHOD/APPARATUS/PROCEDURE:
Sulfisomezole* (0.5 g) was placed in an L-shaped tube together with 20 ml of the buffer soln. The mixt was shaken in a thermostat until equilibrium was attained. The sulfisomezole* was assayed in the supernatant spectrophotometrically at 545 nm on a Beckmann DU spectrophotometer. The results were taken from a calibration graph.

SOURCE AND PURITY OF MATERIALS:
Nothing specified

ESTIMATED ERROR:
Soly and pH: not specified
Temp: ±1°C (authors)

REFERENCES:
COMPONENTS:
1. Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C_{10}H_{11}N_{3}O_{3}S; [723-46-6]
2. Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]
3. Phosphoric acid, monopotassium salt; KH_{2}P0_{4}; [7778-77-0]
4. Water; H_{2}O; [7732-18-5]

VARIABLES: pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>mg/l</th>
<th>10^{-3} \text{ mol dm}^{-3} a</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5</td>
<td>300</td>
<td>1.18</td>
</tr>
<tr>
<td>7.5</td>
<td>1900</td>
<td>7.50</td>
</tr>
</tbody>
</table>

aCalculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Satd solns of sulfamethoxazole were prepd in phosphate buffers of pH 5.5 and 7.5 at room temp (25°C). The concn of the solute was measured by means of a Spectra Physics 3500B high-performance liquid chromatograph equipped with a column oven (Model 748) and a Pye-Unicam LC-UV spectrophotometric detector. The detector was connected to a 1-mV recorder. A stainless steel column (10 cm x 4.6 mm i.d.) was packed with Lichrosorb RPS, 5 μm, obtained from Chrompack. An injection loop of 100 μl was used. The oven temp was 40°C. Detection of sulfamethoxazole was performed at 260 nm.

SOURCE AND PURITY OF MATERIALS:
The source and purity of the materials was not specified.

ESTIMATED ERROR:
The detection limit of the solute by HPLC was 0.5 mg/l (authors). The error in temperature and pH was not specified.

REFERENCES:
Hekster, Y.A.; Vree, T.B.; Damsma, J.E.; Friesen, W.T.

PREPARED BY: R. Piekos
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-(sulfamethoxazole);
   C_{10}H_{11}N_3O_3S; [723-46-6]

(2) Phosphoric acid, disodium salt;
   Na_2HPO_4; [7558-94-4]

(3) Phosphoric acid, monopotassium salt;
   KH_2PO_4; [7778-77-0]

(4) Water; H_2O; [7732-18-5]

VARIABLES:

One temperature: 37°C

EXPERIMENTAL VALUES:

Equilibrium solubility of sulfamethoxazole in a phosphate buffer solution of pH 7.2, at 37°C, is 0.6% (2 x 10^{-2} mol kg^{-1} solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A tablet of sulfamethoxazole was placed in 500 ml of a phosphate buffer of pH 7.2 and stirred at 37°C. Samples were taken at time intervals and the solute concn was detd by the method reported by the authors (1).

SOURCE AND PURITY OF MATERIALS:

Sulfamethoxazole tablets were picked up from the market. They satisfied the USP requirements for uniformity of wt and the BP requirements for uniformity of content. The source and purity of the remaining materials were not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Ghanem, A.; Meshali, M.; Foda, A.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C_{10}H_{11}N_3O_3Si; [723-46-6]
(2) Aminoacetic acid (glycine); C_2H_5NO_2; [56-40-6]
(3) Hydrochloric acid; HCl; [7647-01-0]
(4) Sodium chloride; NaCl; [7647-14-5]
(5) Water; H_2O; [7732-18-5]

VARIABLES: One temperature: 37°C

EXPERIMENTAL VALUES:

Equilibrium solubility of sulfamethoxazole in artificial gastric juice
(0.5 g glycine, 0.35 g NaCl and 9.4 ml HCl per liter of solution;
pH 1.1) at 37°C is 0.338% (1.33 x 10^{-2} mol kg^{-1} solution - compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A tablet of sulfamethoxazole was placed in 500 ml of artificial gastric juice of pH 1.1 and the suspension was stirred at 37°C. Samples were taken at time intervals and the solute concn was detd by the method reported by the authors.

SOURCE AND PURITY OF MATERIALS:
Sulfamethoxazole tablets were picked up from the market. They satisfied the USP requirements for uniformity of wt and the BP requirements for uniformity of content. The source and purity of the remaining materials were not specified.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C_{10}H_{11}N_{3}O_{3}S; [723-46-6]
(2) Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]
(3) Phosphoric acid, monopotassium salt KH_{2}PO_{4}; [7778-77-0]
(4) Sodium chloride; NaCl; [7647-14-5]
(5) Water; H_{2}O; [7732-18-5]

VARIABLES:

One temperature: 37°C

EXPERIMENTAL VALUES:

Solubility of sulfamethoxazole in a 1/15M phosphate buffer solution of pH 7.25, isotonized with NaCl, at 37°C, is 5.7 mg/ml (2.2 x 10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess amount of powdered sulfamethoxazole was shaken well at 37°C with 1/15M phosphate buffer of pH 7.25, isotonized with NaCl, until attaining saturation. The undissolved crystals were removed by filtration through a G5 glass filter or by centrifugation, and the concn of solute in the filtrate or supernatant was assayed spectrophotometrically at 267 nm. after diln with EtOH - H_{2}O (1:1, v/v), using a Perkin Elmer UV-VIS spectrophotometer (Hitachi Co., Ltd., Tokyo).

SOURCE AND PURITY OF MATERIALS:

Sulfamethoxazole was synthesized by the authors and was of medicinal grade. The remaining materials were of anal or reagent grade.

ESTIMATED ERROR:

Nothing specified

REFERENCES:
### COMPONENTS:

<table>
<thead>
<tr>
<th>Number</th>
<th>Component</th>
<th>Formula</th>
<th>CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); Benzoic acid</td>
<td>C₁₀H₁₁N₃O₃S</td>
<td>723-46-6</td>
</tr>
<tr>
<td>2</td>
<td>Ethanol; C₂H₆O</td>
<td>64-17-5</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Water; H₂O</td>
<td>7732-18-6</td>
<td></td>
</tr>
</tbody>
</table>

### VARIABLES:

- One temperature: 25°C

### EXPERIMENTAL VALUES:

Solubility of sulfamethoxazole in 95% ethanol at 25°C is 37.8 mg/ml (0.149 mol dm⁻³, compiler).�

�The temperature and all auxiliary information was given by Edward A. MacMullan from Roche Products Inc., Manati, P.R., in a personal communication.

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**

An excess of solute was equilibrated with the solvent overnight at const temp (25°C) while being agitated with a 60 cycle vibrat- or (VIBROMIXER). A portion of the clear supernatant soln was then taken, weighed and the solvent removed in a vacuum oven. The wt of solute was detd after the residue had been dried to const wt. All weighing was done on a Mettler microbalance using microanal techniques.

**SOURCE AND PURITY OF MATERIALS:**

The sulfamethoxazole was of reference standard quality equivalent to USP. The solvent was purchased Reagent Grade and used without further purification.

**ESTIMATED ERROR:**

- Soly: precision ± 1% (MacMullan)
- Temp: not specified

**REFERENCES:**
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C\(_{10}\)H\(_{11}\)N\(_3\)O\(_3\)S; [723-46-6]
2. Ethanol; C\(_2\)H\(_6\)O; [64-17-5]
3. Water; H\(_2\)O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**

Shah, N.H.; Lazarus, J.H.; Sheth, P.R.; Jarowski, C.I.


**VARIABLES:**

One temperature: 25°C

**EXPERIMENTAL VALUES:**

Solubility of sulfamethoxazole in 95% ethanol at 25°C is 30 mg/ml (0.12 mol dm\(^{-3}\), compiler).

**METHOD/APPARATUS/PROCEDURE:**

The solubility of sulfamethoxazole was determined by the method specified in USP XX (1).

**SOURCE AND PURITY OF MATERIALS:**

Sulfamethoxazole was a research compd purchased from Hoffman - LaRoche, Nutley, N.J. Its purity was not specified.

The source and purity of the 95% EtOH was not specified.

**ESTIMATED ERROR:**

Nothing specified

**REFERENCES:**

COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C₁₀H₁₁N₉O₃S; [723-46-6]
(2) Bovine serum albumin
(3) Phosphoric acid, disodium salt; Na₂HP0₄; [7558-94-4]
(4) Phosphoric acid, monopotassium salt; KH₂P0₄; [7778-77-0]
(5) Sodium chloride; NaCl; [7647-14-5]
(6) Water; H₂O; [7732-18-5]

VARIABLES:
One temperature: 37°C; one pH: 7.25

EXPERIMENTAL VALUES:
Solubility of sulfamethoxazole in a 2% (w/v) bovine serum albumin in pH 7.25 phosphate buffer (0.067 M Na₂HP0₄-KH₂P0₄) isotonized with NaCl, at 37°C, is 7.2 mg/ml (2.8 x 10⁻² mol dm⁻³, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The previously developed method was employed (1). An excess of powd sulfamethoxazole was shaken well at 37°C with the 2% bovine serum albumin in pH 7.25 phosphate buffer isotonized with NaCl until attaining satn. The undissolved crystals were removed by filtration through a G5 glass filter or by centrifugation, and the concn of solute in the filtrate or supernatant was assayed spectrophotometrically at 267 nm using a Perkin Elmer UV-VIS spectrophotometer (Hitachi Co., Ltd., Tokyo).

SOURCE AND PURITY OF MATERIALS:
Sulfamethoxazole was synthesized by the authors and was of medicinal grade. Bovine serum albumin (purity not specified) was from Sigma Chemical Co., St. Louis, No. The remaining materials were of anal or reagent grade.

ESTIMATED ERROR:
Nothing specified

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C_{10}H_{11}N_2O_3S; [723-46-6]
(2) 1,4,7,10,13,16-Hexaoxacyclooctadecane (18-C-6); C_{12}H_{24}O_6; [17455-13-9]
(3) Hydrochloric acid; HCl; [7647-01-0]
(4) Water; H_2O; [7732-18-5]

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Saturated concentration of sulfamethoxazole after decomplexation of its 1:1 complex with 18-C-6 in 0.2N HCl 10^2 M</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>1.11</td>
</tr>
<tr>
<td>35</td>
<td>1.31</td>
</tr>
<tr>
<td>40</td>
<td>1.64</td>
</tr>
</tbody>
</table>

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An excess of the complex was dissolved in 50 ml of 0.2N HCl. The sampling was done by a 1-ml pipet fitted with a G-4 glass filter. The concentration of the sulfonamide was detd by uv spectrophotometry after dilg with 0.2N HCl.

SOURCE AND PURITY OF MATERIALS:
Sulfamethoxazole (Shionogi Pharmaceutical Co.) was recrystd from a 30% (V/V) Me_2CO-H_2O soln. 18-C-6 was of the reagent grade. The 1:1 complex was prepd by the authors. Purity of the HCl soln was not specified.

ESTIMATED ERROR:
Nothing specified

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole);
C₁₀H₁₁N₃O₅S; [723-46-6]
(2) D-Glucitol (sorbitol); C₆H₁₄O₆; [50-70-4]
(3) Water; H₂O; [7732-18-5]

VARIABLES:
Concentration of sorbitol

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Concentration of sorbitol</th>
<th>Solubility at 37°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>g litre⁻¹</td>
</tr>
<tr>
<td>0.5</td>
<td>0.60</td>
</tr>
<tr>
<td>1.0</td>
<td>0.595</td>
</tr>
<tr>
<td>1.5</td>
<td>0.60</td>
</tr>
</tbody>
</table>

a Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An excess of sulfamethoxazole was added to 15 ml of sorbitol soln in 30-ml glass-stoppered bottles which were rotated on a water bath at 37°C until equilibrium was attained. Samples were filtered and the sulfonamide was assayed spectrophotometrically at 265 nm after dilg with 0.1M HCl. Coulometric assays gave similar results.

SOURCE AND PURITY OF MATERIALS:
Sulfamethoxazole was from Kahira Pharm and Chem Ind Co, Egypt. Sorbitol was purchased from El-Nasr Chem Co, Egypt. Distd waster was used.

ESTIMATED ERROR:
Soly: detns were carried out in duplicate (authors)
Temp: ±1°C (authors)

REFERENCES:
COMPONENTS:
1. Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole);
C₁₀H₁₁N₃O₃S; [723-46-6]
2. Mannitol; C₆H₁₂O₆; [87-78-5]
3. Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:

VARIABLES:
Concentration of mannitol

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Concentration of mannitol</th>
<th>Solubility at 37°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight%</td>
<td>g litre⁻¹</td>
</tr>
<tr>
<td>0.5</td>
<td>0.615</td>
</tr>
<tr>
<td>1.0</td>
<td>0.605</td>
</tr>
<tr>
<td>1.5</td>
<td>0.603</td>
</tr>
</tbody>
</table>

aCalculated by compiler

METHOD/APPARATUS/PROCEDURE:
An excess of sulfamethoxazole was added to 15 ml of mannitol soln in 30-ml glass-stoppered bottles which were rotated on a water bath at 37°C until equilibrium was attained. Samples were filtered and the sulfonamide was assayed spectrophotometrically at 265 nm after dilg with 0.1M HCl. Coulometric assays gave similar results.

SOURCE AND PURITY OF MATERIALS:
Sulfamethoxazole was from Kahira Pharm and Chem Ind Co, Egypt. Mannitol was purchased from El-Nasr Chem Co, Egypt. Distd water was used.

ESTIMATED ERROR:
Soly: detns were carried out in duplicate (authors).
Temp: ±1°C (authors).

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C₁₀H₁₁N₃O₃S; [723-46-6]
(2) Glucose; C₆H₁₂O₆; [50-99-7]
(3) Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Ghanem, A.; Meshali, M.; Ibraheem, Y.

VARIABLES:
Concentration of glucose

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Concentration of glucose (Weight%)</th>
<th>Solubility at 37°C g litre⁻¹</th>
<th>10³ mol dm⁻³ a</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>0.67</td>
<td>2.6</td>
</tr>
<tr>
<td>1.0</td>
<td>0.755</td>
<td>3.0</td>
</tr>
<tr>
<td>1.5</td>
<td>0.76</td>
<td>3.0</td>
</tr>
</tbody>
</table>

aCalculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An excess of sulfamethoxazole was added to 15 ml of glucose soln in 30-ml glass-stoppered bottles which were rotated on a water bath at 37°C until equilibrium was attained. Samples were filtered and the sulfonamide was assayed spectrophotometrically at 265 nm after dilg with 0.1M HCl. Coulometric assays gave similar results.

SOURCE AND PURITY OF MATERIALS:
Sulfamethoxazole was from Kahira Pharm and Chem Ind Co, Egypt. Glucose was purchased from El-Nasr Chem Co, Egypt. Distd water was used.

ESTIMATED ERROR:
Soly: detns were carried out in duplicate (authors).
Temp: ±1°C

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-aminoo-N-(5-methyl-3-isoxazolyl)-(sulfamethoxazole);
C_{10}H_{11}N_{3}O_{3}S; [723-46-6]
(2) Galactose; C_{6}H_{12}O_{6}; [26566-61-0]
(3) Water; H_{2}O; [7732-18-5]

VARIABLES:
Concentration of galactose

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Concentration of galactose</th>
<th>Solubility at 37°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight%</td>
<td>g litre^{-1}</td>
</tr>
<tr>
<td></td>
<td>10^{-3} mol dm^{-3}</td>
</tr>
<tr>
<td>0.5</td>
<td>0.67</td>
</tr>
<tr>
<td></td>
<td>2.64</td>
</tr>
<tr>
<td>1.0</td>
<td>0.775</td>
</tr>
<tr>
<td></td>
<td>3.06</td>
</tr>
<tr>
<td>1.5</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>3.16</td>
</tr>
</tbody>
</table>

^aCalculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An excess of sulfamethoxazole was added to 15 ml of galactose soln in 30-ml glass-stoppered bottles which were rotated on a water bath at 37°C until equilibrium was attained. Samples were filtered and the sulfonamide was assayed spectrophotometrically at 265 nm after dilg with 0.1M HCl. Coulometric assays gave similar results.

SOURCE AND PURITY OF MATERIALS:
Sulfamethoxazole was from Kahira Pharm and Chem Ind Co, Egypt. Galactose was purchased from E. Merck. Distd water was used.

ESTIMATED ERROR:
Soly: detns were carried out in duplicate (authors).
Temp: ±1°C (authors).

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole);
C_{10}H_{11}N_{3}O_{3}S; [723-46-6]
(2) α-D-Glucopyranoside, β-D-fructofuranosyl- (sucrose); C_{12}H_{22}O_{11}; [57-60-1]
(3) Water; H_{2}O; [7732-18-5]

VARIABLES:
Concentration of sucrose

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Concentration of sucrose Weight%</th>
<th>Solubility at 37°C g litre⁻¹</th>
<th>10⁻³ mol dm⁻³ a</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>0.615</td>
<td>2.43</td>
</tr>
<tr>
<td>1.0</td>
<td>0.605</td>
<td>2.39</td>
</tr>
<tr>
<td>1.5</td>
<td>0.615</td>
<td>2.43</td>
</tr>
</tbody>
</table>

aCalculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A excess of sulfamethoxazole was added to 15 ml of sucrose soln in 30-ml glass-stoppered bottles which were rotated on a water bath at 37°C until equilibrium was attained. Samples were filtered and the sulfonamide was assayed spectrophotometrically at 265 nm after dilg with 0.1M HCl. Coulometric assays gave similar results.

SOURCE AND PURITY OF MATERIALS:
Sulfamethoxazole was from Kahira Pharm and Chem Ind Co, Egypt. Sucrose was purchased.
Purity of the water was not specified.

ESTIMATED ERROR:
Soly: detns were carried out in duplicate (authors).
Temp: ±1°C (authors)

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C\textsubscript{10}H\textsubscript{11}N\textsubscript{3}O\textsubscript{3}S; [723-46-6]
(2) D-Glucose, 4-O- α-D-glucopyranosyl-(maltose); C\textsubscript{12}H\textsubscript{22}O\textsubscript{11}; [69-79-4]
(3) Water; H\textsubscript{2}O; [7732-18-5]

VARIABLES:
Concentration of maltose

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Concentration of maltose</th>
<th>Solubility at 37°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>g litre\textsuperscript{-1}</td>
</tr>
<tr>
<td>0.5</td>
<td>0.66</td>
</tr>
<tr>
<td>1.0</td>
<td>0.79</td>
</tr>
<tr>
<td>1.5</td>
<td>0.83</td>
</tr>
</tbody>
</table>

\(a\)Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An excess of sulfamethoxazole was added to 15 ml of maltose soln in 30-ml glass-stoppered bottles which were rotated on a water bath at 37°C until equilibrium was attained. Samples were filtered and the sulfonamide was assayed spectrophotometrically at 265 nm after dilg with 0.1M HCl. Coulometric assays gave similar results.

SOURCE AND PURITY OF MATERIALS:
Sulfamethoxazole was from Kahira Pharm and Chem Ind Co, Egypt. Maltose was purchased from Spolek, Czechoslovakia. Distd water was used.

ESTIMATED ERROR:
Soly: detns were carried out in duplicate (authors).
Temp: ±1°C

REFERENCES:
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); [C_{10}H_{11}N_{3}O_{3}S; {723-46-6}]</td>
<td>Rudy, B.C.; Senkowski, B.Z.</td>
</tr>
<tr>
<td>(2) Methanol; [CH_{4}O; {67-56-1}]</td>
<td>*Anal. Profiles Drug Subst, 1973, 2,</td>
</tr>
<tr>
<td></td>
<td>467-86.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: [25^\circ C]</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility of sulfamethoxazole in methanol at [25^\circ C] is [90.3 \text{ mg/ml}] [0.356 \text{ mol dm}^{-3}, \text{ compiler}].[a]</td>
<td></td>
</tr>
</tbody>
</table>

\[a\]The temperature and all auxiliary information was given by Edward A. MacMullan from Roche Products Inc., Manati, P.R., in personal communication.

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

An excess of solute was equilibrated with the solvent overnight at const temp \[25^\circ C\] while being agitated with a 60 cycle vibrator (VIBRONIXER). A portion of the clear supernatant soln was then taken, weighed and the solvent removed in a vacuum oven. The wt. of solute was detd after the residue had been dried to const wt. All weighing was done on a Mettler microbalance using microanal techniques.

**SOURCE AND PURITY OF MATERIALS:**

The sulfamethoxazole was of reference standard quality equivalent to USP. The solvent was purchased Reagent Grade and used without further purification.

**ESTIMATED ERROR:**

Soly: precision \[\pm 1\%\] (MacMullan)
Temp: not specified

**REFERENCES:**
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C₁₀H₁₁N₃O₃S; [723-46-6]</td>
<td>Shah, N.H.; Lazarus, J.H.; Sheth, P.R.; Jarowski, C.I.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 25°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

**EXPERIMENTAL VALUES:**

Solubility of sulfamethoxazole in methanol at 25°C is 90 mg/ml (0.35 mol dm⁻³, compiler).

**AUXILIARY INFORMATION**

**METHOD/APARATUS/PROCEDURE:**
The solubility of sulfamethoxazole was determined by the method specified in USP XX (1).

**SOURCE AND PURITY OF MATERIALS:**
Sulfamethoxazole was a research compd purchased from Hoffmann - LaRoche, Nutley, N.J. Its purity was not specified.
The source and purity of methanol was not specified.

**ESTIMATED ERROR:**
Nothing specified

**REFERENCES:**
**COMPONENTS:**

(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C_{10}H_{11}N_{3}O_{3}S; [723-46-6]

(2) 2-Propanol; C_{3}H_{8}O; [67-63-0]

**ORIGINAL MEASUREMENTS:**

Rudy, B.C.; Senkowski, B.Z.  

**VARIABLES:**

One temperature: 25°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfamethoxazole in 2-propanol at 25°C is 8.8 mg/ml  
\(3.5 \times 10^{-2} \text{ mol dm}^{-3}\), compiler.  

\(^a\)The temperature and all auxiliary information was given by Edward A. MacMullan from Roche Products Inc., Manati, P.R., in a personal communication.

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

An excess of solute was equilibrated with the solvent overnight at const temp (25°C) while being agitated with a 60 cycle vibrator (VIBROMIXER). A portion of the clear supernatant soln was then taken, weighed and the solvent removed in a vacuum oven. The wt of solute was detd after the residue had been dried to const wt. All weighing was done on a Mettler microbalance using microanal techniques.

**SOURCE AND PURITY OF MATERIALS:**

The sulfamethoxazole was of reference standard quality equivalent to USP. The solvent was purchased Reagent Grade and used without further purification.

**ESTIMATED ERROR:**

Soly: precision ±1% (MacMullan)  
Temp: not specified

**REFERENCES:**
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C_{10}H_{11}N_{3}O_{3}S; [723-46-6]</td>
<td>Sunwoo, C.; Eisen, H. J. Pharm. Sci., 1971, 60, 238-44.</td>
</tr>
<tr>
<td>(2) Ethanol, 2-ethoxy-; C_{4}H_{10}O_{2}; [110-80-5]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 25°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
<th></th>
</tr>
</thead>
</table>

The mole fraction solubility of sulfamethoxazole in 2-ethoxyethanol at 25°C is 0.0911 (22.0 g/100 g solution, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
Soly was detd by the method reported by Restaino and Martin. Sulfamethoxazole was assayed on a Coleman-Hitachi 124 double-beam spectrophotometer at 271 nm after diln of a sample with 95% alcohol or water.

**SOURCE AND PURITY OF MATERIALS:**
Sulfamethoxazole (Hoffmann–La Roche, Inc., Nutley, N.J.) was recrystd from warm alcohol. 2-Ethoxyethanol (Cellosolve solvent, Union Carbide, New York, N.Y.) was of industrial grade.

**ESTIMATED ERROR:**
Soly: the mean of 3 runs was given (authors). Temp: ±1.0°C (authors).

**REFERENCES:**
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C₁₀H₁₁N₃O₃S; [723-46-6]</td>
<td>Rudy, B.C.; Senkowski, B.Z.</td>
</tr>
<tr>
<td>(3) Methanol; CH₄O; [67-56-1]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 25°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

**EXPERIMENTAL VALUES:**

Solubility of sulfamethoxazole in 3A alcohol (ethanol containing approximately 5% methanol) at 25°C is 30.6 mg/ml (0.121 mol dm⁻³, compiler).²

²The temperature, the composition of 3A alcohol and all auxiliary information was given by Edward A. MacMullan from Roche Products Inc., Manati, P.R., in a personal communication.

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

An excess of solute was equilibrated with the solvent overnight at const temp (25°C) while being agitated with a 60 cycle vibrator (VIBROMIXER). A portion of the clear supernatant soln was then taken, weighed and the solvent removed in a vacuum oven. The wt of solute was detd after the residue had been dried to const wt. All weighing was done on a Mettler microbalance using microanal techniques.

**SOURCE AND PURITY OF MATERIALS:**

The sulfamethoxazole was of reference standard quality equivalent to USP. The solvent was purchased Reagent Grade and used without further purification.

**ESTIMATED ERROR:**

Soly: precision ±1% (MacMullan)
Temp: not specified

**REFERENCES:**
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole);
   C\textsubscript{10}H\textsubscript{11}N\textsubscript{3}O\textsubscript{3}S; \[723-46-6\]
2. Ethane, 1,1'-oxybis- (ethyl ether);
   C\textsubscript{4}H\textsubscript{10}O; \[60-29-7\]

**ORIGINAL MEASUREMENTS:**

Rudy, B.C.; Senkowski, B.Z.

**VARIABLES:**

One temperature: 25°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfamethoxazole in ethyl ether at 25°C is 2.7 mg/ml
(1.1 x 10\textsuperscript{-2} mol dm\textsuperscript{-3}, compiler).\textsuperscript{a}

\textsuperscript{a}The temperature and all auxiliary information was given by
Edward A. MacMullan from Roche Products Inc., Manati, P.R.,
in a personal communication.

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

An excess of solute was equilibrated with the solvent overnight at const temp (25°C) while being agitated with a 60 cycle vibrator (VIBROMIXER). A portion of the clear supernatant soln was then taken, weighed and the solvent removed in a vacuum oven. The wt of solute was detd after the residue had been dried to const wt. All weighing was done on a Mettler microbalance using microanal techniques.

**SOURCE AND PURITY OF MATERIALS:**

The sulfamethoxazole was of reference standard quality equivalent to USP.
The solvent was purchased Reagent Grade and used without further purification.

**ESTIMATED ERROR:**

Soly: precision ±1% (MacMullan)
Temp: not specified

**REFERENCES:**
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
</table>
| (1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-(sulfamethoxazole); C_{10}H_{11}N_{3}O_{3}S; [723-46-6] | Rudy, B.C.; Senkowski, B.Z.  
| (2) Petroleum ether; [8032-32-4] | |

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 25°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
</tr>
</thead>
</table>

Solubility of sulfamethoxazole in petroleum ether (boiling range 30-60°C) at 25°C is 0.2 mg/ml (8 x 10^{-4} mol dm^{-3}, compiler).\(^{a}\)

\(^{a}\)The temperature and all auxiliary information was given by Edward A. MacMullan from Roche Products Inc., Manati, P.R., in a personal communication.

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
An excess of solute was equilibrated with the solvent overnight at const temp (25°C) while being agitated with a 60 cycle vibrator (VIBROMIXER). A portion of the clear supernatant soln was then taken, weighed and the solvent removed in a vacuum oven. The wt of solute was detd after the residue had been dried to const wt. All weighing was done on a Mettler microbalance using microanal techniques.

**SOURCE AND PURITY OF MATERIALS:**
The sulfamethoxazole was of reference standard quality equivalent to USP. The solvent was purchased Reagent Grade and used without further purification.

**ESTIMATED ERROR:**
Soly: precision ±1% (MacMullan)  
Temp: not specified

**REFERENCES:**
## COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-(methyl-3-isoxazolyl)- (sulfamethoxazole); \( C_{10}H_{11}N_3O_3S \); [723-46-6]
2. Benzene; \( C_6H_6 \); [71-43-2]

## ORIGINAL MEASUREMENTS:
Rudy, B.C.; Senkowski, B.Z.

## VARIABLES:

One temperature: 25°C

## EXPERIMENTAL VALUES:

Solubility of sulfamethoxazole in benzene at 25°C is 0.5 mg/ml (2.0 x 10^-3 mol dm^-3, compiler). a

---

**AUXILIARY INFORMATION**

### METHOD/APPARATUS/PROCEDURE:

An excess of solute was equilibrated with benzene overnight at const temp (25°C) while being agitated with a 60 cycle vibrator (VIBROMIXER). A portion of the clear supernatant soln was then taken, weighed and the solvent removed in a vacuum oven. The wt of solute was detd after the residue had been dried to const wt. All weighing was done on a Mettler microbalance using microanal techniques.

### SOURCE AND PURITY OF MATERIALS:

The sulfamethoxazole was of reference standard quality equivalent to USP. The solvent was purchased Reagent Grade and used without further purification.

### ESTIMATED ERROR:

Soly: precision ±1% (MacMullan)
Temp: not specified

### REFERENCES:

---

*aThe temperature and all auxiliary information was given by Edward A. MacMullan from Roche Products Inc., Manati, P.R., in a personal communication.*
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-(sulfamethoxazole); C_{10}H_{11}N_{3}O_{3}S; [723-46-6]</td>
<td>Takayama, K.; Nambu, N.; Nagai, T., Chem. Pharm. Bull. 1977, 25, 2608-12.</td>
</tr>
<tr>
<td>(2) Benzene; C_{6}H_{6}; [71-43-2]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 10°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

**EXPERIMENTAL VALUES:**

Solubility of sulfamethoxazole in benzene at 10°C is $3.60 \times 10^{-4}$ mol dm$^{-3}$.

aNumerical value supplied by the authors.

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
The system was equilibrated in a sealed vial for 72 h at 10°C. The satd soln was rapidly filtered through a Toyo filter paper No. 5B, 1 cm$^{3}$ of the filtrate was evapd at 40°C and the residue was dissolved in CHCl$_3$ to det the concn in the UV region using a Hitachi 124 spectrophotometer.

**SOURCE AND PURITY OF MATERIALS:**
Sulfamethoxazole, m.p. 167°C, was a very pure compd supplied by Shionogi Pharmaceutical Co., Ltd. Purity of the benzene was not specified.

**ESTIMATED ERROR:**
None specified

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C₁₀H₁₁N₃O₃S; [723-46-6]
(2) 1,4,7,10,13,16-Hexaoxacyclooctadecane (18-Crown-6); C₁₂H₂₄O₆; [17455-13-9]
(3) Benzene; C₆H₆; [71-43-2]

ORIGINAL MEASUREMENTS:
Takayama, K.; Nambu, N.; Nagai, T.

VARIABLES:
Concentration of 18-Crown-6

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

![Graph showing the concentration of sulfamethoxazole vs. the concentration of 18-Crown-6.]

CONCENTRATION OF SULFAMETHOXAZOLE M X 10⁴

Concentration of 18-Crown-6 M x 10⁻¹

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The system was equilibrated in a sealed vial for 72 h at 10°C. The satd. soln. was rapidly filtered through a Toyo filter paper No. 5B, 1 cm³ of the filtrate was evapd. at 40°C and the residue was dissolved in CHCl₃ to det. the concn. in the UV region using a Hitachi 124 spectrophotometer.

SOURCE AND PURITY OF MATERIALS:
Sulfamethoxazole, m.p. 167°C, was a very pure compd. supplied by Shionogi Pharmaceutical Co., Ltd.
Purity of the benzene was not specified.

ESTIMATED ERROR:
None specified

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-(sulfamethoxazole); C_{10}H_{11}N_{3}O_{3}S; [723-46-6]
(2) 1,4,7,10,13,16-Hexaoxacyclooctadecane (18-Crown-6); C_{12}H_{24}O_{6}; [17455-13-9]
(3) Benzene; C_{6}H_{6}; [71-43-2]

VARIABLES:
Concentration of 18-Crown-6

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Concentration of 18-Crown-6 (10^{-3} \text{ mol dm}^{-3})</th>
<th>Solubility at 10\degree \text{C} \ a (10^{-4} \text{ mol dm}^{-3})</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.30</td>
<td>3.70</td>
</tr>
<tr>
<td>0.60</td>
<td>3.42</td>
</tr>
<tr>
<td>0.90</td>
<td>3.56</td>
</tr>
<tr>
<td>1.20</td>
<td>3.30</td>
</tr>
<tr>
<td>1.50</td>
<td>3.10</td>
</tr>
<tr>
<td>1.80</td>
<td>2.92</td>
</tr>
<tr>
<td>2.10</td>
<td>2.82</td>
</tr>
<tr>
<td>2.40</td>
<td>2.66</td>
</tr>
<tr>
<td>2.70</td>
<td>2.50</td>
</tr>
<tr>
<td>3.00</td>
<td>2.44</td>
</tr>
<tr>
<td>4.00</td>
<td>2.25</td>
</tr>
<tr>
<td>5.00</td>
<td>1.54</td>
</tr>
<tr>
<td>6.00</td>
<td>1.40</td>
</tr>
<tr>
<td>7.00</td>
<td>1.30</td>
</tr>
<tr>
<td>8.00</td>
<td>0.95</td>
</tr>
<tr>
<td>9.00</td>
<td>1.25</td>
</tr>
<tr>
<td>10.00</td>
<td>1.28</td>
</tr>
</tbody>
</table>

\text{aNumerical values supplied by the authors}

METHOD/APPARATUS/PROCEDURE:
The system was equilibrated in a sealed vial for 72 h at 10\degree \text{C}. The satd soln was rapidly filtered through a Toyo filter paper No. 5B, 1 cm^{3} of the filtrate was evapd at 40\degree \text{C} and the residue was dissolved in CHCl_{3} to det the concn in the UV region using a Hitachi 124 spectrophotometer.

SOURCE AND PURITY OF MATERIALS:
Sulfamethoxazole, m.p. 167\degree \text{C}, was a very pure compd supplied by Shionogi Pharmaceutical Co., Ltd.
18-Crown-6 was of the reagent grade.
Purity of the benzene was not specified.

ESTIMATED ERROR:
None specified

REFERENCES:
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Methane, trichloro- (chloroform); CHCl₃; [67-66-3]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 20°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
</tr>
</thead>
</table>

Solubility of sulfamethoxazole in chloroform at 20°C is 206 mg% (8.13 x 10⁻³ mol dm⁻³ solution, compiler).

<table>
<thead>
<tr>
<th>AUXILIARY INFORMATION</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>METHOD/APPARATUS/PROCEDURE:</th>
<th>SOURCE AND PURITY OF MATERIALS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing specified</td>
<td>Nothing specified</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESTIMATED ERROR:</th>
</tr>
</thead>
</table>

Nothing specified

<p>| REFERENCES: |</p>
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Methane, trichloro - (chloroform); CHCl₃; [67-66-3]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 30°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

**EXPERIMENTAL VALUES:**

Solubility of sulfisomezole* in chloroform at 30°C is 6.75 mmol/L (1.71 g dm⁻³, compiler).

* Another common trivial name is sulfamethoxazole.

---

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

Sulfisomezole (0.5 g) was placed in an L-shaped tube together with 20 ml of chloroform. The mixt was shaken in a thermostat until equilibrium was attained. The sulfisomezole was assayed in the supernatant spectrophotometrically at 545 nm on a Beckmann DU spectrophotometer. The results were taken from a calibration graph.

**SOURCE AND PURITY OF MATERIALS:**

Nothing specified

**ESTIMATED ERROR:**

Soly: not specified
Temp: ±1°C (authors)

**REFERENCES:**
**COMPONENTS:**

(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); 
\[ C_{10}H_{11}N_3O_3S; \quad [723-46-6] \]

(2) Methane, trichloro-; CHCl₃; 
\[ [67-66-3] \]

**ORIGINAL MEASUREMENTS:**


**VARIABLES:**

One temperature: 37°C

**EXPERIMENTAL VALUES:**

Solubility of sulfamethoxazole in CHCl₃ at 37°C is 13.1 mmol dm⁻³ solution.

**PREPARED BY:**

R. Piekos

---

**METHOD/APPARATUS/PROCEDURE:**

One ml of the CHCl₃ soln of sulfamethoxazole at equilibrium was taken into a test tube. After evpn of the solvent, the residue was dissolved in 1N NaOH, the soln was properly dild with deionized water, and the concn of sulfamethoxazole was detd by diazotization.

**SOURCE AND PURITY OF MATERIALS:**

Comm available sulfamethoxazole (source not specified) was used as supplied. Neither source nor the purity of the CHCl₃ was specified.

**ESTIMATED ERROR:**

Soly: not specified  
Temp: ±1°C (authors)

**REFERENCES:**
**COMPONENTS:**
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)- (sulfamethoxazole); C_{10}H_{11}N_3O_3S; [723-46-6]
(2) Methane, trichloro-; CHCl_3 [67-66-3]

**ORIGINAL MEASUREMENTS:**
Rudy, B.C.; Senkowski, B.Z.

**VARIABLES:**
One temperature: 25°C

**PREPARED BY:**
R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfamethoxazole in trichloromethane at 25°C is 2.3 mg/ml (9.1 x 10^{-3} mol dm^{-3}, compiler). \(^a\)

\(^a\)The temperature and all auxiliary information was given by Edward A. MacMullan from Roche Products Inc., Manati, P.R., in a personal communication.

---

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
An excess of solute was equilibrated with trichloromethane overnight at const temp (25°C) while being agitated with a 60 cycle vibrator (VIBROMIXER). A portion of the clear supernatant soln was then taken, weighed and the solvent removed in a vacuum oven. The wt of solute was detd after the residue had been dried to const wt. All weighing was done on a Mettler microbalance using microanal techniques.

**SOURCE AND PURITY OF MATERIALS:**
The sulfamethoxazole was of reference standard quality equivalent to USP.
The solvent was purchased Reagent Grade and used without further purification.

**ESTIMATED ERROR:**
Soly: precision ±1% (MacMullan)
Temp: not specified

**REFERENCES:**
COMPONENTS: ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-1,4,7,10,13,16-hexaoxa-cyclooctadecane complex (1:1); C_{10}H_{11}N_3O_3S·C_{12}H_{24}O_6; [65177-07-3]
(2) Hydrochloric acid; HCl; [7647-01-0]
(3) Water; H_2O; [7732-18-5]

PREPARED BY: R. Piekos

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Saturated concentration of the complex in 0.2N HCl (10^-2 M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>2.23</td>
</tr>
<tr>
<td>35</td>
<td>2.43</td>
</tr>
<tr>
<td>40</td>
<td>2.64</td>
</tr>
</tbody>
</table>

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An excess of the complex was dissolved in 50 ml of 0.2N HCl. Sampling was done by a 1-ml pipet fitted with a G-4 glass filter. The concn of the sulfonamide in the complex was detd by uv spectrophotometry after dilg with 0.2N HCl.

SOURCE AND PURITY OF MATERIALS:
The complex was prepd by sealing 5 g of the sulfonamide (Shionogi Pharmaceutical Co.) with 5.2 g of the reagent grade crown ether in a flask and stirring well for 10 days at 10°C. The complex was filtered off, washed with benzene and dried under vacuum for 24 h. Purity of the HCl soln was not specified.

ESTIMATED ERROR:
Nothing specified

REFERENCES:
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-methyl-N-(5-methyl-3-isoxazolyl)-; \( C_{11}H_{13}N_{3}O_{3}S; \ [51543-31-8] \)
2. Water; \( H_2O; \ [7732-18-5] \)

**ORIGINAL MEASUREMENTS:**


**VARIABLES:**

One temperature: 37°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of 4-amino-N-methyl-N-(5-methyl-3-isoxazolyl)-benzenesulfonamide in water at 37°C is 0.628 mmol dm⁻³ solution.

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

The sulfonamide was detd in the aq soln (pH 6) by diazotization. No details were given.

**SOURCE AND PURITY OF MATERIALS:**

The sulfonamide was synthesized by the authors. Its purity was not specified. Deionized water was used.

**ESTIMATED ERROR:**

Soly: not specified.
Temp: ±1°C (authors).

**REFERENCES:**
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 37°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
<th></th>
</tr>
</thead>
</table>

Solubility of 4-amino-N-methyl-N-(5-methyl-3-isoxazolyl)-benzenesulfonamide in CHCl₃ at 37°C is 1000 mmol dm⁻³ solution.

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

One ml of the CHCl₃ soln of the sulfonamide at equilibrium was taken into a test tube. After evapn of the solvent, the residue was dissolved in EtOH, the soln was properly dild with deionized water, and the concn of the sulfonamide was detd by diazotization.

**SOURCE AND PURITY OF MATERIALS:**

The sulfonamide was synthesized by the authors. Its purity was not specified. Neither source nor purity of the CHCl₃ was specified.

**ESTIMATED ERROR:**

Soly: not specified
Temp: ±1°C (authors)

**REFERENCES:**
COMPONENTS:

1. Acetamide, N-[(4-aminophenyl)sulfonyl]-N-(5-methyl-3-isoxazolyl)-(N^1-acetyl-sulfamethoxazole); C_{12}H_{13}N_{3}O_{4}S; [18607-98-2]
2. Sodium chloride; NaCl; [7647-14-5]
3. Water; H_{2}O; [7732-18-5]

VARIABLES:

One temperature: 37°C

EXPERIMENTAL VALUES:

Solubility of N^1-acetylsulfamethoxazole in a 0.9% NaCl solution at 37°C is 0.076 mg/ml (2.6 x 10^{-4} mol dm^{-3}, compiler).

METHOD/APPARATUS/PROCEDURE:

An excess of powdered N^1-acetylsulfamethoxazole was shaken well at 37°C with a 0.9% NaCl soln until attaining satn. The undissolved crystals were removed by filtration through a G5 glass filter or by centrifugation, and the concn of the solute was assayed spectrophotometrically at 289 nm, after diln with EtOH - H_{2}O (1:1, v/v) using a Perkin Elmer UV-VIS spectrophotometer (Hitachi Co., Ltd., Tokyo).

SOURCE AND PURITY OF MATERIALS:

N^1-acetylsulfamethoxazole was synthesized by the authors and was of medical grade. The remaining materials were of anal or reagent grade.

ESTIMATED ERROR:

Nothing specified

REFERENCES:
COMPONENTS:
(1) Acetamide, \(\text{N}-[(4\text{-aminophenyl})\text{ sulfonyl}]\)-
\(\text{N}-[(5\text{-methyl-3-isoxazolyl})\text{-(N'\text{-acetyl-}}\text{sulfamethoxazole})];
\(\text{C}_2\text{H}_3\text{N}_3\text{O}_4\text{S}; [18607-98-2]
(2) Phosphoric acid, disodium salt; 
\(\text{Na}_2\text{HPO}_4; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; 
\(\text{KH}_2\text{PO}_4; [7778-77-0]
(4) Water; \(\text{H}_2\text{O}; [7732-18-5]

ORIGINAL MEASUREMENTS:
Hekster, Ch. A.; Vree, T. B.

C 12 H 13 N 3 0 4 S; [18607-98-2]
Phospnoric acid, disodium salt; 
\(\text{Na}_2\text{HPO}_4; [7558-94-4]
Phosphoric acid, monopotassium salt; 
\(\text{KH}_2\text{PO}_4; [7778-77-0]
Water; \(\text{H}_2\text{O}; [7732-18-5]

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility at 25°C</th>
<th>mg/l</th>
<th>(10^4 \text{ mol dm}^{-3}) a</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5</td>
<td>66</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>7.5</td>
<td>66 b</td>
<td>2.2</td>
<td></td>
</tr>
</tbody>
</table>

aCalculated by compiler
bErroneous pH value of 7.0 is given in the article

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The earlier developed method (1) was used (personal communication). Satd solns of
\(\text{N}^1\text{-acetyl}sulfamethoxazole were prep'd in phosphate buffers of pH 5.5 and 7.5 at
25°C. The concn of the solute was measured by means of a Spectra Physics 3500B high-
performance liquid chromatograph equipped with a Model 748 column oven and a Pye-
Unicam LC-UV spectrophotometric detector.

SOURCE AND PURITY OF MATERIALS:
Neither source nor the purity of the materials was specified.

ESTIMATED ERROR:
Soly: the detection limit of the solute by HPLC was 0.5 mg/l (authors). The errors
in temp and pH were not specified.

REFERENCES:
Hekster, Y. A.; Vree, T. B.;
Damsma, J. E.; Friesen, W. T.
COMPONENTS:

(1) Acetamide, N-[4-[(5-methyl-3-isoxazolyl)-
    -amino]sulfonyl]phenyl]- (N^4-acetyl-
    sulfamethoxazole); C_{12}H_{13}N_{3}O_{4}S;
    [21312-10-7]

(2) Phosphoric acid, disodium salt;
    Na_{2}HPO_{4}; [7558-94-4]

(3) Phosphoric acid, monopotassium salt;
    KHP_{2}O_{4}; [7778-77-0]

(4) Water; H_{2}O; [7732-18-5]

VARIABLES: pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>mg/l</th>
<th>10^3 mol dm^{-3} a</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5</td>
<td>115</td>
<td>0.389</td>
</tr>
<tr>
<td>7.5</td>
<td>1000</td>
<td>3.386</td>
</tr>
</tbody>
</table>

*Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Satd solns of N^4-acetyl sulfamethoxazole were prepd in phosphate buffers of pH 5.5 and
7.5 at room temp (25^oC). The concn of the solute was measured by means of a Spectra
Physics 3500B high-performance liquid chromatograph equipped with a column oven
(Model 748) and a Pye-Unicam LC-UV spectrophotometric detector. The detector was
connected to a 1-mV recorder. A stainless steel column (10 cm x 4.6 mm i.d.) was packed
with Lichrosorb RPS, 5 μm, obtained from Chrompack. An injection loop of 100 μl was
used. The oven temp was 40^oC. Detection of the solute was performed at 260 nm.

SOURCE AND PURITY OF MATERIALS:
The source and purity of the materials was not specified.

ESTIMATED ERROR:
The detection limit of solute by HPLC was
0.5 mg/l (authors). The error in tempera-
ture and pH was not specified.

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3-4-dimethyl-5-isoxazolyl)-(sulfisoxazole) C_{11}H_{13}N_{3}O_{5}S; [127-69-5]
(2) Water
(3) Ethanol

EVALUATOR:
Anthony N. Paruta
Department of Pharmaceutics
University of Rhode Island
Kingston, Rhode Island, USA
and
Ryszard Piekos
Faculty of Pharmacy, University of Gdansk
Gdansk, Poland 1986

CRITICAL EVALUATION:

Aqueous solubilities of the compound at 310K as determined twice, in 1978 and 1980, by the same laboratory (1,2) using virtually identical methods and procedures and are the same. Assuming that the values were independently determined, the recommended value is 1.09 x 10^{-3} mol dm^{-3} in water at 298K.

Ethanolic solubilities were determined at 303K by two independent groups (3,4). The results are only within 10%, and the equilibrium time unclear (4). The tentative average value of sulfisoxazole in ethanol at 303K is given as 81.6 x 10^{-3} mol dm^{-3}. This value is about 75 times higher than that of water.

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-
  dimethyl-5-isoxazolyl) - (sulfisoxazole;
  C_{11}H_{13}N_{3}O_{3}S; [127-69-5]
(2) Water; H_{2}O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Yamazaki, M; Aoki, M.; Kamada, A.;
Yata, N.; Yakusaigaku 1967, 27(1),
37-40.

VARIABLES:
One temperature: 30°C

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfisoxazole in water at 30°C is 0.83 mmol/L
( 0.22 g dm^{-3}, compiler ).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfisoxazole (0.5 g) was placed in an
L-shaped tube together with 20 ml of water.
The mixt was shaken in a thermostat until
equilibrium was attained. The sulfisoxazol
was assayed in the supernatant
spectrophotometrically at 545 nm on a
Beckman DU spectrophotometer. The results
were taken from a calibration graph.

SOURCE AND PURITY OF MATERIALS:
Nothing specified

ESTIMATED ERROR:
Soly: not specified
Temp: ±1°C (authors)

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-(sulfisoxazole); C_{11}H_{13}N_{3}O_{3}S; [127-69-5]
(2) Water; H_{2}O; [7732-18-5]

VARIABLES:
One temperature: 37°C

EXPERIMENTAL VALUES:

Solubility of sulfisoxazole in water at 37°C is 0.292 mg/ml solution (1.09 x 10^{-3} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An excess of sulfisoxazole was placed in a flask contg 25 ml of water. The flask was shaken (2 strokes/s at the amplitude of 3 cm) in a thermostatically controlled water bath at 37°C. One-ml sample was withdrawn every 6 h (total equilibration period was 3-5 days) using a warmed Millipore filter syringe with a filter pore size of 0.45 μ (Millipore HAWP 01300) and the filtrate was dild with water and assayed spectrophotometrically (1).

SOURCE AND PURITY OF MATERIALS:
Commercial sulfisoxazole of the Japanese Pharmacopeia grade and distd water were used.

ESTIMATED ERROR:
Soly: not specified.
Temp: ±0.05°C (authors).

REFERENCES:
1. Kaneniwa, N.; Watari, N.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-(sulfisoxazole); CH$_7$H$_3$N$_3$O$_7$S; [127-69-5]
(2) Water; H$_2$O; [7732-18-5]

VARIABLES:
One temperature: 37°C

EXPERIMENTAL VALUES:

Solubility of sulfisoxazole in water at 37°C is 29.2 mg/100 ml (1.09 x 10^{-3} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The earlier developed method was employed (1), whereby an excess of sulfisoxazole, required to saturate medium, was placed in a flask contg 25 ml of water. The flask was shaken (2 strokes/s) at an amplitude of 3 cm, in a thermostatically controlled bath. One-ml sample was removed every 6 h (total equilibration time was 3-5 days) using a warmed Millipore filter syringe with a filter pore size of 0.45 μ (Millipore HAWP 01300) and the filtrate was diluted with water and assayed spectrophotometrically.

SOURCE AND PURITY OF MATERIALS:
Sulfisoxazole was of the Japanese Pharmacopeia grade.
Distilled water was used.

ESTIMATED ERROR:
Soly: not specified
Temp: ±0.05°C (authors)

REFERENCES:
1. Kaneniwa, N.; Watari, N.
**COMPONENTS:**
(1) Benzene sulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)- (sulfisoxazole); C₁₁H₁₃N₃O₃S; [127-69-5]
(2) Hydrochloric acid; HCl; [7647-01-0]
(3) Water; H₂O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**

**EXPERIMENTAL VALUES:**

Solubility of sulfisoxazole in 0.1N HCl at 37°C is 1.440 mg/ml
(5.387 x 10⁻³ mol dm⁻³, compiler).

**METHOD/APPARATUS/PROCEDURE:**
A centrifuge tube contg 30 ml of 0.1N HCl and 0.5-3.0 g of the sulfisoxazole powder was tightly sealed and shaken at 37°C.
The concn of the dissolved drug was detd spectrophotometrically following filtration through a Millipore filter (type EH, pore size 0.5 µm), and the procedure was repeated every 24 h until a const concn was obtained.

**SOURCE AND PURITY OF MATERIALS:**
Comm available 500-mg uncoated tablets of sulfisoxazole were used.
Hydrochloric acid was of reagent grade.

**ESTIMATED ERROR:**
Nothing specified

**REFERENCES:**
### COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-(sulfisoxazole); 
   \( \text{C}_{11}\text{H}_{13}\text{N}_{3}\text{O}_{3}\text{S} \); [127-69-5]
2. Carbonic acid, monosodium salt; 
   \( \text{NaHCO}_3 \); [144-55-8]
3. Water; \( \text{H}_2\text{O} \); [7732-18-5]

### ORIGINAL MEASUREMENTS:


### PREPARED BY:

R. Piekos

### VARIABLES:

- One temperature: \( 37^\circ\text{C} \); one pH: 8.4

### EXPERIMENTAL VALUES:

Solubility of sulfisoxazole in a \( \text{NaHCO}_3 \) solution (1.680 g \( \text{NaHCO}_3 \)/100 ml water) of pH 8.4 at \( 37^\circ\text{C} \) is 31.25 mg/ml solution \( a \) (1.169 \( \times 10^{-1} \) mol dm\(^{-3} \) solution, compiler).

\( a \) Numerical value to the graphical data was given by one of the authors (S. T.) in personal communication.

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**

Aliquots of the \( \text{NaHCO}_3 \) soln were placed in glass-stoppered flasks with excess of sulfisoxazole. The flasks were allowed to stand at \( 37^\circ\text{C} \) and shaken vigorously for 4 h until equilibrium was attained. One ml of the supernatant was removed by means of a filter pipet and sulfisoxazole was assayed by the previously reported method (1).

**SOURCE AND PURITY OF MATERIALS:**

The sulfisoxazole was of the pharmaceutical grade. The source and purity of \( \text{NaHCO}_3 \) was not specified.

Distd was used.

**ESTIMATED ERROR:**

- Soly and pH: not specified.
- Temp: \( \pm 1^\circ\text{C} \) (authors).

**REFERENCES:**

COMPONENTS: ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-(sulfisoxazole);
C_{11}H_{13}N_{3}O_{3}S; [127-69-5]
(2) Carbonic acid; disodium salt; Na_{2}CO_{3}; [497-19-8]
(3) Water; H_{2}O; [7732-18-5]


VARIABLES:
One temperature: 37°C; one pH: 11.3

EXPERIMENTAL VALUES:

Solubility of sulfisoxazole in a Na_{2}CO_{3} solution (2.120 g Na_{2}CO_{3}/100 ml water) of pH 11.3 at 37°C is 54.12 mg/ml solution^a (2.025 x 10^{-1} mol dm^{-3} solution, compiler).

^aNumerical value for the graphical data was given by one of the authors (S. T.) in personal communication.

METHOD/APPARATUS/PROCEDURE:
Aliquots of the Na_{2}CO_{3} solution were placed in glass-stoppered flasks with excess of sulfisoxazole. The flasks were allowed to stand at 37±1°C and shaken vigorously for 4 h until equilibrium was established. One ml of the supernatant was removed by means of a filter pipet and sulfisoxazole was assayed by the previously reported method (1).

SOURCE AND PURITY OF MATERIALS:
The sulfisoxazole was of pharmaceutical grade. The source and purity of Na_{2}CO_{3} was not specified.
Distd water was used.

ESTIMATED ERROR:
Soly and pH: not specified.
Temp: ±1°C.

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-(sulfisoxazole); C_{11}H_{13}N_{3}O_{3}S; [127-69-5]
(2) Carbonic acid; disodium salt; Na_{2}CO_{3}; [497-19-8]
(3) Carbonic acid; monosodium salt; NaHCO_{3}; [144-55-8]
(4) Water; H_{2}O; [7732-18-5]

VARIABLES:
\textit{pH}

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Na_{2}CO_{3} g/100 ml water</th>
<th>NaHCO_{3} g/100 ml water</th>
<th>pH</th>
<th>Solubility at 37^\circC mg/ml soln^{a}</th>
<th>10 mol dm^{-3} soln^{b}</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.212</td>
<td>1.512</td>
<td>9.1</td>
<td>35.84</td>
<td>1.341</td>
</tr>
<tr>
<td>0.848</td>
<td>1.008</td>
<td>9.8</td>
<td>48.97</td>
<td>1.832</td>
</tr>
<tr>
<td>1.908</td>
<td>0.168</td>
<td>10.7</td>
<td>54.12</td>
<td>2.025</td>
</tr>
</tbody>
</table>

^{a}Numerical values to the graphical data were given by one of the authors (S.T.) in personal communication.

^{b}Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Aliquots of carbonate buffer solns were placed in glass-stoppered flasks with excess of sulfisoxazole. The flasks were allowed to stand at 37±1^\circC and shaken vigorously for 4 h until equilibrium was established. One ml of the supernatant was removed by means of a filter pipet and sulfisoxazole was assayed by the previously reported method (1).

SOURCE AND PURITY OF MATERIALS:
The sulfisoxazole was of pharmaceutical grade. The source and purity of Na_{2}CO_{3} and NaHCO_{3} were not specified. Distd water was used.

ESTIMATED ERROR:
Soly and pH: not specified.
Temp: ±1^\circC (authors).

REFERENCES:
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)- (sulfisoxazole); C_{11}H_{13}N_{3}O_{5}S; \{127-69-5\}

(2) Phosphoric acid, disodium salt; Na_{2}HPO_{4}; \{7558-94-4\}

(3) Phosphoric acid, monopotassium salt; KH_{2}PO_{4}; \{7778-77-0\}

(4) Water; H_{2}O; \{7732-18-5\}

VARIABLE: pH

EXPERIMENTAL VALUES:

Solubility of sulfisoxazole in buffers of varying mixtures of Na_{2}HPO_{4}·7H_{2}O (71.6 g/l; distilled water; 0.27 mol dm^{-3}, compiler) and KH_{2}PO_{4} (36.3 g/l distilled water; 0.27 mol dm^{-3}, compiler) at 37°C

<table>
<thead>
<tr>
<th>Initial pH</th>
<th>mg/100 ml</th>
<th>10^2 mol dm^{-3} a</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td>33</td>
<td>0.12</td>
</tr>
<tr>
<td>5.0</td>
<td>45</td>
<td>0.16</td>
</tr>
<tr>
<td>5.5</td>
<td>70</td>
<td>0.26</td>
</tr>
<tr>
<td>6.0</td>
<td>175</td>
<td>0.65</td>
</tr>
<tr>
<td>6.5</td>
<td>405</td>
<td>1.51</td>
</tr>
<tr>
<td>7.0</td>
<td>1360</td>
<td>5.08</td>
</tr>
<tr>
<td>7.5</td>
<td>2870</td>
<td>10.73</td>
</tr>
</tbody>
</table>

a calculated by compiler

Auxiliary Information

METHOD/APPROATUS/PROCEDURE:
Solns were prepd by adding an excess of sulfisoxazole to 10 ml of buffer soln at each pH level in 18 x 150-mm test tubes, stoppering the tubes and placing them in a water bath at 37°C with gentle agitation for 24 h. The mixt was then filtered and a 1-ml aliquot was accurately pipetted into a volumetric flask for diln and analysis. The balance was retained for pH detn to ascertain any change in pH value. The sulfonamide was assayed colorimetrically by the method of Bratton and Marshall as described in detail by Biamonte and Schneller (1). A standard curve was prepd using accurately prepd standard solutions.

SOURCE AND PURITY OF MATERIALS:
Neither source nor purity of the reagents were specified.
Distilled water was used.

ESTIMATED ERROR:
Soly: av values of duplicate runs are reported (authors).
Temp and pH: not specified.

REFERENCES:
1. Biamonte, A.R.; Schneller, G.E.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)- (sulfisoxazole); C11H13N3O3S; [127-69-5]
(2) Phosphoric acid, disodium salt; Na2HPO4; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH2PO4 [7778-77-0]
(4) Water; H2O; [7732-18-5]

VARIABLE:
One temperature: 20°C; one pH: 7.4

EXPERIMENTAL VALUES:

Solubility of sulfisoxazole in a M/15 Sörensen buffer solution (pH 7.4) at 20°C is 4000 mg% (0.1496 mol dm⁻³ solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sörensen buffer solns of pH varying between 7 and 8 were prep'd, satd with sulfisoxazole at 20°C, their pH was measured at equilibrium and the sulfisoxazole was assayed colorimetrically. The measured pH values were then plotted against concn., and the soly at pH 7.4 was detd by interpolation (personal communication).

SOURCE AND PURITY OF MATERIALS:
Nothing specified.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
COMPONENTS: ORIGINAL MEASUREMENTS:

(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)- (sulfisoxazole); C_{11}H_{13}N_{3}O_{3}S; [127-69-5]
(2) Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH_{2}PO_{4}; [7778-77-0]
(4) Water; H_{2}O; [7732-18-5]


PREPARED BY: R. Piekos

VARIABLES:
One temperature: 30°C; one pH: 7.4

EXPERIMENTAL VALUES:

Solubility of sulfisoxazole in a phosphate buffer solution of pH 7.4$^{a}$ (μ = 0.17) at 30°C is 32.1 mmol/L (8.580 g dm$^{-3}$, compiler).

$^{a}$At the end of experiment the pH was 6.5

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfisoxazole (0.5 g) was placed in an L-shaped tube together with 20 ml of the buffer soln. The mixt was shaken in a thermostat until equilibrium was attained. The sulfisoxazole was assayed in the supernatant spectrophotometrically at 545 nm on a Beckmann DU spectrophotometer. The results were taken from a calibration graph.

SOURCE AND PURITY OF MATERIALS:
Nothing specified

ESTIMATED ERROR:
Soly and pH: not specified
Temp: ±1°C (authors)

REFERENCES:
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-(sulfafurazole); C_{11}H_{13}N_{3}O_{3}S; [127-69-5]
(2) Phosphoric acid, dipotassium salt; K_{2}H_{2}P_{2}O_{7}; [7778-77-0]
(3) Phosphoric acid, monopotassium salt; K_{2}H_{2}P_{2}O_{7}; [7778-77-0]
(4) Water; H_{2}O; [7732-18-5]

VARIABLES: pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>mg/l</th>
<th>10^{-3} \text{mol dm}^{-3}</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5</td>
<td>1,533</td>
<td>5.735</td>
</tr>
<tr>
<td>7.5(^{b})</td>
<td>4,724</td>
<td>17.670</td>
</tr>
</tbody>
</table>

\(^{a}\)Calculated by compiler

\(^{b}\)Erroneous pH value of 7.0 is given in the article

*Another common trivial name is sulfisoxazole.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The earlier developed method (1) was used (personal communication). Satd solns of sulfafurazole were prepd in phosphate buffers of pH 5.5 and 7.5 at 25°C. The concn of the solute was measured by means of a Spectra Physics 3500B high-performance liquid chromatograph equipped with a Model 748 column oven and a Pye-Unicam LC-UV spectrophotometric detector.

SOURCE AND PURITY OF MATERIALS:

Neither source nor the purity of the materials was specified.

ESTIMATED ERROR:

Soly: the detection limit of the solute by HPLC was 0.5 mg/l (authors). The errors in temp and pH were not specified.

REFERENCES:

1. Hekster, Y.A.; Vree, T.B.; Damsma, J.E.; Friesen, W.T.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)- (sulfisoxazole); C_{11}H_{13}N_{3}O_{3}S; [127-69-5]
(2) Calcium chloride; CaCl\textsubscript{2}; [10043-52-4]
(3) Magnesium chloride; MgCl\textsubscript{2}; [7786-30-3]
(4) Phosphoric acid, monoammonium salt; NH\textsubscript{4}H\textsubscript{2}P0\textsubscript{4}; [7722-76-1]
(5) Potassium chloride; KCl; [7447-40-7]
(6) Sodium chloride; NaCl; [7647-14-5]
(7) Urea; CH\textsubscript{4}N\textsubscript{2}O; [57-13-6]
(8) Water; H\textsubscript{2}O; [7732-18-5]

VARIABLES:
\text{pH} \text{ at } 37^\circ \text{C}

EXPERIMENTAL VALUES:

Solubility of sulfisoxazole in a solution containing CaCl\textsubscript{2} 0.143, MgCl\textsubscript{2} 0.121, NH\textsubscript{4}H\textsubscript{2}P0\textsubscript{4} 0.300, KCl 1.660, NaCl 2.950 and urea 20 g/dm\textsuperscript{3} (synthetic urine, Mosher Vehicle) at 37\textdegree C.

<table>
<thead>
<tr>
<th>Equilibrium pH</th>
<th>mg/100 ml</th>
<th>10\textsuperscript{2} mol/dm\textsuperscript{3} \textsuperscript{a}</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td>36</td>
<td>0.13</td>
</tr>
<tr>
<td>5.0</td>
<td>51</td>
<td>0.19</td>
</tr>
<tr>
<td>5.5</td>
<td>80</td>
<td>0.29</td>
</tr>
<tr>
<td>6.0</td>
<td>220</td>
<td>0.82</td>
</tr>
<tr>
<td>6.4</td>
<td>710</td>
<td>2.66</td>
</tr>
<tr>
<td>6.7</td>
<td>2600</td>
<td>9.73</td>
</tr>
</tbody>
</table>

\textsuperscript{a}calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Excess sulfisoxazole was added to aliquots of synthetic urine solns and 1% H\textsubscript{3}P0\textsubscript{4} or 1% NaOH solns were used to adjust the pH to the required value. The solns were agitated for 24 h with addn of acid or base to keep them at the desired pH level until equilibrium was attained. Then the solns were filtered and in aliquot the sulfonamide was assayed spectrophotometrically by the method described by Biamonte and Schneller (1).

SOURCE AND PURITY OF MATERIALS:
Nothing specified

ESTIMATED ERROR:
Soly: average values of 2 detns were given.
Temp: not specified
pH : not specified

REFERENCES:
1. Biamonte, A.R.; Schneller, G. E.
### Components:

1. Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)- (sulfisoxazole); \( \text{C}_{13}\text{H}_{13}\text{N}_{3}\text{O}_{3}\text{S} \); [127-69-5]
2. 1,2,3-Propanetricarboxylic acid, 2-hydroxy- (citric acid); \( \text{C}_{6}\text{H}_{8}\text{O}_{7} \); [77-92-9]
3. Water; \( \text{H}_{2}\text{O} \); [7732-18-5]

### Variables:

- One temperature: \( 37^\circ\text{C} \)
- One pH: 2.1

### Experimental Values:

Solubility of sulfisoxazole in a citric acid solution (2.100 g citric acid per 100 ml water) of pH 2.1 at \( 37^\circ\text{C} \) is 0.31 mg/ml solution\(^a\)

\(^a\) Numerical value to the graphical one was given by one of the authors (S.T) in personal communication.

### Auxiliary Information

**Method/Apparatus/Procedure:**

Aliquots of the citric acid soln were placed in glass-stoppered flasks with excess of sulfisoxazole. The flasks were allowed to stand at \( 37\pm1^\circ\text{C} \) and shaken vigorously for 4 h until equilibrium was established. One ml of the supernatant was removed by means of a filter and the sulfanilamide was assayed by the previously reported method (1).

**Source and Purity of Materials:**

The sulfanilamide was of pharmaceutical grade. Source and purity of the citric acid was not specified.

Distd water was used.

**Estimated Error:**

- Soly and pH: not specified
- Temp: \( \pm1^\circ\text{C} \) (authors)

**References:**

COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)- (sulfisoxazole); C11H13N3O3S; [127-69-5]
(2) Phosphoric acid, disodium salt; Na2HP04; [7558-94-4]
(3) 1,2,3-Propanetricarboxylic acid, 2-hydroxy- (citric acid); C6H8O7; [77-92-9]
(4) Water; H2O; [7732-18-5]

VARIABLES:

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Citric acid g/100 g water</th>
<th>Na2HP04 g/100 g water</th>
<th>pH</th>
<th>Solubility at 37°C mg/ml soln</th>
<th>10^2 mol dm^-3 soln</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.680</td>
<td>0.572</td>
<td>3.1</td>
<td>0.23</td>
<td>0.086</td>
</tr>
<tr>
<td>1.260</td>
<td>0.144</td>
<td>4.2</td>
<td>0.30</td>
<td>0.112</td>
</tr>
<tr>
<td>0.840</td>
<td>1.716</td>
<td>5.8</td>
<td>1.70</td>
<td>0.636</td>
</tr>
<tr>
<td>0.420</td>
<td>2.228</td>
<td>6.8</td>
<td>8.50</td>
<td>3.180</td>
</tr>
</tbody>
</table>

^a Numerical values to the graphical ones were given by one of the authors (S. T.) in personal communication.

^b Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Aliquots of the buffer solns were placed in glass-stoppered flasks with excess of sulfisoxazole. The flasks were allowed to stand at 37±1°C and shaken vigorously for 4 h until equilibrium was established. One ml of the supernatant was removed by means of a filter pipet and sulfisoxazole was assayed by the previously reported method (1).

SOURCE AND PURITY OF MATERIALS:
The sulfisoxazole was of the pharmaceutical grade. The source and purity of Na2HP04 and citric acid were not specified. Distd water was used.

ESTIMATED ERROR:
Soly and pH: not specified.
Temp: ±1°C (authors)

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)- (sulfisoxazole); C₁₁H₁₃N₃O₃S; [127-69-5]
(2) Phosphoric acid, disodium salt; Na₂HPO₄; [7558-94-4]
(3) 1,2,3-Propanetricarboxylic acid, 2-hydroxy- (citric acid); C₆H₈O₇; [77-92-9]
(4) Water; H₂O; [7732-18-5]

VARIABLES:
  pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Initial pH of buffer</th>
<th>Solubility</th>
<th>Final pH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg/100 ml</td>
<td>10⁻² mol dm⁻³ a</td>
</tr>
<tr>
<td>4.5</td>
<td>32.3</td>
<td>0.121</td>
</tr>
<tr>
<td>5.0</td>
<td>51.6</td>
<td>0.193</td>
</tr>
<tr>
<td>5.5</td>
<td>108.7</td>
<td>0.407</td>
</tr>
<tr>
<td>6.0</td>
<td>262.0</td>
<td>0.980</td>
</tr>
<tr>
<td>6.5</td>
<td>616.0</td>
<td>2.304</td>
</tr>
<tr>
<td>7.0</td>
<td>2,135.0</td>
<td>7.987</td>
</tr>
</tbody>
</table>

*Calculated by compiler

*Another common trivial name is sulfisoxazole.

METHOD/APPARATUS/PROCEDURE:
Sulfafurazole*(500 mg) was equilibrated in a water bath with 50 ml of the buffer soln for 18 h at 37°C with agitation. The suspension was then immediately filtered through a Whatman No. 1 paper. The filtration time was approx 2 min. Sulfafurazole* in the filtrate was assayed spectrophotometrically by the Bratton and Marshall method (1) using a Beckman DU spectrophotometer, at 545 nm.

SOURCE AND PURITY OF MATERIALS:
The source of sulfafurazole (mp 193.4 - 193.9°C) was not specified. The source and purity of the remaining materials were not specified.

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-(sulfisoxazole); C_{11}H_{13}N_{3}O_{3}S; [127-69-5]
(2) Sorbitan monolaurate, polyoxyethylene derivatives (Tween 20); [9005-64-5]
(3) Water; H_{2}O; [7732-18-5]

VARIABLES:
Concentration of Tween 20

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Concentration of Tween 20, 10^{2}(g/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2</td>
</tr>
<tr>
<td>1.3</td>
</tr>
<tr>
<td>1.4</td>
</tr>
<tr>
<td>1.5</td>
</tr>
<tr>
<td>1.6</td>
</tr>
<tr>
<td>1.7</td>
</tr>
<tr>
<td>1.8</td>
</tr>
<tr>
<td>1.9</td>
</tr>
<tr>
<td>2.0</td>
</tr>
</tbody>
</table>

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An earlier described method was employed (1) whereby a 100-ml conical flask contg a Tween 20 soln was placed in a drying cabinet at 35\(^{\circ}\)C and an excess of sulfisoxazole was added under stirring for 1 h. After 12 h the soln was filtered or decanted and the solute was assayed in the filtrate spectrophotometrically using a Unicam SP 500 spectrophotometer and 1-ml quartz cuvets. Results were taken from a calibration graph.

SOURCE AND PURITY OF MATERIALS:
Neither source nor purity of sulfisoxazole and water were specified. Tween 20 was supplied by Atlas-Goldschmidt A.G., Essen (purity not specified).

ESTIMATED ERROR:
Nothing specified

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)- (sulfisoxazole); C₁₁H₁₃N₃O₃S; [127-69-5]
(2) Methanol; CH₄O; [67-56-1]

ORIGINAL MEASUREMENTS:
Mauger, J.W.; Petersen, H. Jr.; Alexander, K. S.; Paruta, A. N.

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Solubility</th>
<th>10³ X a</th>
<th>mol dm⁻³ b</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>49.4</td>
<td>7.52</td>
<td>0.184</td>
</tr>
<tr>
<td>30</td>
<td>56.0</td>
<td>8.57</td>
<td>0.209</td>
</tr>
<tr>
<td>37</td>
<td>67.9</td>
<td>10.40</td>
<td>0.254</td>
</tr>
</tbody>
</table>

a X = mole fraction
b calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A const temp bath contg screw-capped bottles with sulfisoxazole in excess and methanol was rotated for 24 h. Samples were withdrawn through a pledget of glass wool into a pipet, which was wiped clean and allowed to drain into a volumetric flask. Soly was detd from absorbance and previously ascertained Beer's law plots detd on a Cary model 16 spectrophotometer (1).

SOURCE AND PURITY OF MATERIALS:
Sulfisoxazole: lot 378067, Hoffman-LaRoche. Its mp agreed with the literature value.
Methanol was spectrograde solvent from Mallinckrodt Chemical Works.

ESTIMATED ERROR:
Soly: av. of at least 3 detns is reported (authors).
Temp: ±0.1°C (authors).

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)- (sulfisoxazole); C_{11}H_{13}N_{3}O_{3}S; [127-69-5]
(2) Ethanol; C_{2}H_{6}O; [64-17-5]

ORIGINAL MEASUREMENTS:
Mauger, J. W.; Petersen, H. Jr.; Alexander, K. S.; Paruta, A. N.;

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Solubility</th>
<th>10^3X a</th>
<th>10^2 mol dm⁻³ b</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>19.1</td>
<td>4.18</td>
<td>7.14</td>
</tr>
<tr>
<td>30</td>
<td>22.6</td>
<td>4.99</td>
<td>8.45</td>
</tr>
<tr>
<td>37</td>
<td>26.6</td>
<td>5.90</td>
<td>9.95</td>
</tr>
</tbody>
</table>

a X = mole fraction

b calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A const temp bath contg screw-capped bottles with sulfisoxazole in excess and ethanol was rotated for 24 h. Samples were withdrawn through a pledget of glass wool into a pipet, which was wiped clean and allowed to drain into a volumetric flask. Soly was detd from absorbance and previously ascertained Beer's law plots detd on a Cary model 16 spectrophotometer (1).

SOURCE AND PURITY OF MATERIALS:
Sulfisoxazole: lot 378067, Hoffman-LaRoche, Inc. Its mp agreed with the literature value. Ethanol was from the U.S. Industrial Chemical Co. Its refractive index value and density agreed with literature values.

ESTIMATED ERROR:
Soly: av of at least 3 detns is reported (authors).
Temp: ±0.1°C (authors).

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl) (sulfisoxazole); C_{11}H_{13}N_{3}O_{3}S; [127-69-5]
(2) Ethanol; C_{2}H_{6}O; [64-17-5]

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Solubility{a} 10^2 mol dm^{-3} solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>4.43</td>
</tr>
<tr>
<td>20</td>
<td>5.98</td>
</tr>
<tr>
<td>30</td>
<td>7.86</td>
</tr>
<tr>
<td>40</td>
<td>11.0</td>
</tr>
<tr>
<td>50</td>
<td>15.2</td>
</tr>
</tbody>
</table>

{a}Original data are presented graphically.
The numerical data are given by the authors.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
After attaining equilibrium, sample solns were removed by a syringe and filtered quickly through a membrane filter (pore size 0.2μ) and sulfisoxazole was assayed spectrophotometrically at 269 nm using a Hitachi Type 200-20 spectrophotometer.

SOURCE AND PURITY OF MATERIALS:
Sulfisoxazole (Yamanouchi Pharmaceutical Co.) was of the Japanese Pharmacopeia IX grade. Abs EtOH was obtained by drying and distn of EtOH following the conventional procedures.

ESTIMATED ERROR:
Nothing specified

REFERENCES:

ORIGINAL MEASUREMENTS:
Sekikawa, H.; Nakano, H.; Arita, T.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-(sulfisoxazole); C₁₁H₁₃N₃O₃S; [127-69-5]
(2) 1-Propanol; C₃H₈O; [71-23-8]

ORIGINAL MEASUREMENTS:
Mauger, J. W.; Petersen, H., Jr.; Alexander, K. S.; Paruta, A. N.

VARIABLES: Temperature

PREPARED BY: R. Piekos

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Solubility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg/ml</td>
</tr>
<tr>
<td>25</td>
<td>7.95</td>
</tr>
<tr>
<td>30</td>
<td>9.53</td>
</tr>
<tr>
<td>37</td>
<td>12.2</td>
</tr>
</tbody>
</table>

a X = mole fraction
b calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A const temp bath contg screw-capped bottles with sulfisoxazole in excess and 1-propanol was rotated for 24 h. Samples were withdrawn through a pledget of glass wool into a pipet, which was wiped clean and allowed to drain into a volumetric flask. Soly was detd from absorbance and previously ascertained Beer’s law plots detd on a Cary model 16 spectrophotometer (1).

SOURCE AND PURITY OF MATERIALS:
Sulfisoxazole: lot 378067, Hoffman-LaRoche, Inc. Its mp agreed with the literature value. 1-Propanol was Baker Analyzed Reagent (J.T. Baker Chemical Co.). Its refractive index value and density agreed with literature values.

ESTIMATED ERROR:
Soly: av. of at least 3 detns is reported (authors).
Temp: ±0.1°C

REFERENCES:
1. Mauger, J.W.; Paruta, A.N.
## COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl) - (sulfisoxazole);
\[ C_{11}H_{13}N_{3}O_{3}S; \ [127-69-5] \]

(2) 1-Butanol; \[ C_{4}H_{10}O; \ [71-36-3] \]

## VARIABLES:

Temperature

## EXPERIMENTAL VALUES:

### SOLUBILITY

<table>
<thead>
<tr>
<th>t/°C</th>
<th>mg/ml</th>
<th>(10^{-3}X^a)</th>
<th>(10^2 \text{ mol dm}^{-3} \text{ b})</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>4.31</td>
<td>1.48</td>
<td>1.61</td>
</tr>
<tr>
<td>30</td>
<td>5.30</td>
<td>1.83</td>
<td>1.98</td>
</tr>
<tr>
<td>37</td>
<td>6.53</td>
<td>2.26</td>
<td>2.44</td>
</tr>
</tbody>
</table>

\(a \ X = \) mole fraction

\(b \) calculated by compiler

## AUXILIARY INFORMATION

### METHOD/APPARATUS/PROCEDURE:

Screw-capped bottles with sulfisoxazole and BuOH were rotated in a const temp bath for 24 h. Samples were withdrawn through a pledget of glass wool into a pipet, which was wiped clean and allowed to drain into a volumetric flask. Soly was detd from absorbance and previously ascertained Beer’s law plots detd on a Cary Model 16 spectrophotometer (1).

### SOURCE AND PURITY OF MATERIALS:

Sulfisoxazole: lot 378067, Hoffman-LaRoche, Inc. M.p. agreed with literature values.
1-Butanol was purchased from Mallinckrodt Chem Works. Refractive index value and density agreed with literature values.

### ESTIMATED ERROR:

Temp: ±0.1°C (authors).
Sol: an average of at least 3 detns is reported (authors).

### REFERENCES:

COMPONENTS: ORIGINAL MEASUREMENTS:

(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)- (sulfisoxazole);
   \( C_{11}H_{13}N_3O_3S \); [127-69-5]

(2) 1-Pentanol; \( C_5H_{12}O \); [71-41-0]

Mauger, J. W.; Petersen, H., Jr.; Alexander, K. S.; Paruta, A. N.

VARIABLES: PREPARED BY:

Temperature R. Piekos

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Temperature</th>
<th>mg/ml</th>
<th>( 10^3 \times )</th>
<th>( 10^2 ) mol dm(^{-3} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>2.61</td>
<td>1.06</td>
<td>0.98</td>
</tr>
<tr>
<td>30</td>
<td>3.20</td>
<td>1.30</td>
<td>1.20</td>
</tr>
<tr>
<td>37</td>
<td>3.95</td>
<td>1.62</td>
<td>1.48</td>
</tr>
</tbody>
</table>

\( a \times = \) mole fraction

\( b \) calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The soly was detd by the method of Paruta et al. (1): Screw-capped bottles with sulfisoxazole in excess and 1-pentanol were rotated in a const temp bath for 24 h. Samples were withdrawn through a pledget of glass wool into a pipet, which was wiped clean and allowed to drain into a volumetric flask. Soly was detd from absorbance and previously ascertained Beer's law plots detd on a Cary Model 16 spectrophotometer.

SOURCE AND PURITY OF MATERIALS:
Sulfisoxazole: lot 378067, Hoffman-LaRoche, Inc. M.p. agreed with literature values. 1-Pentanol was purchased from Fisher Scientific Co. Refractive index valu and density agreed with literature values.

ESTIMATED ERROR:
Temp: ±0.1°C
Soly: Not specified.

REFERENCES:
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)- (sulfisoxazole): $\text{C}_{11}\text{H}_{13}\text{N}_{3}\text{O}_{3}\text{S}$; [127-69-5]
2. 1-Octanol: $\text{C}_{8}\text{H}_{16}\text{O}$; [111-87-5]

**VARIABLES:**

Temperature

**EXPERIMENTAL VALUES:**

**SOLUBILITY**

<table>
<thead>
<tr>
<th>$t/°C$</th>
<th>mg/ml</th>
<th>$10^3 \text{ mol dm}^{-3}$ \text{b}</th>
<th>$10^3 \times a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>0.94</td>
<td>3.52</td>
<td>0.55</td>
</tr>
<tr>
<td>30</td>
<td>1.17</td>
<td>4.38</td>
<td>0.69</td>
</tr>
<tr>
<td>37</td>
<td>1.40</td>
<td>5.24</td>
<td>0.83</td>
</tr>
</tbody>
</table>

\[a \times = \text{mole fraction}\]

\[b \text{ calculated by compiler}\]

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
The soly was detd by the method of Paruta et al. (1): Screw-capped bottles with sulfisoxazole in excess and 1-Octanol were rotated in a const temp bath for 24 h. Samples were withdrawn through a pledget of glass wool into a pipet, which was wiped clean and allowed to drain into a volumetric flask. Soly was detd from absorbance and previously ascertained Beer's law plots detd on a Cary Model 16 spectrophotometer.

**SOURCE AND PURITY OF MATERIALS:**
Sulfisoxazole: lot 378067, Hoffman-LaRoche, Inc. M.p. agreed with the literature values. 1-Octanol was purchased from Fisher Scientific Co. Refractive index value and density agreed with literature values.

**ESTIMATED ERROR:**
Temp: ±0.1°C
Soly: not specified

**REFERENCES:**
COMPONENTS: ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-
dimethyl-5-isoxazolyl)- (sulfisoxazole); C₁₁H₁₃N₃O₃S; [127-69-5]
(2) 1-Decanol; C₁₀H₂₂O; [112-30-1]

Mauger, J. W.; Petersen, H. Jr.; Alexander, K. S.; Paruta, A. N.;

VARIABLES: PREPARED BY:
Temperature R. Piekos

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>mg/ml</th>
<th>10³ X a</th>
<th>10³ mol dm⁻³ b</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>0.57</td>
<td>0.41</td>
<td>2.13</td>
</tr>
<tr>
<td>30</td>
<td>0.68</td>
<td>0.49</td>
<td>2.54</td>
</tr>
<tr>
<td>37</td>
<td>0.85</td>
<td>0.61</td>
<td>3.18</td>
</tr>
</tbody>
</table>

a X = mole fraction  
b calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The soly was detd by the method of Paruta et al. (1): Screw-capped bottles with  
sulfisoxazole in excess and 1-decanol were rotated in a const temp bath for 24 h. Samples  
were withdrawn through a pledget of glass wool into a pipet, which was wiped clean and allowed to drain into a volumetric flask. Soly was detd from absorbance and  
previously ascertained Beer's law plots detd on a Cary Model 16 spectrophotometer.

SOURCE AND PURITY OF MATERIALS:
1-decanol was purchased from Matheson, Coleman and Bell. Refractive index value and  
density agreed with those reported in the literature.

ESTIMATED ERROR:
Temp: ±0.1°C (authors).  
Soly: not specified.

REFERENCES:
COMPONENTS: ORIGI NAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-
dimethyl-5-isoxazolyl)- (sulfisoxazole);
C_{11}H_{13}N_{3}O_{3}S; [127-69-5]
(2) Ethanol, 2-ethoxy-; C_{4}H_{10}O_{2}; [110-80-5]

VARIABLES:
One temperature

EXPERIMENTAL VALUES:

The mole fraction solubility of sulfisoxazole in 2-ethoxyethanol at
25°C is 0.0495 (13.4 g/100 g solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Soly was detd by the method reported by
Restaino and Martin. Sulfisoxazole was
assayed on a Coleman-Hitachi 124 double-
beam spectrophotometer at 270 nm after diln
of a sample with 95% alcohol or water.

SOURCE AND PURITY OF MATERIALS:
Sulfisoxazole (Hoffman-LaRoche Inc., Nutley,
N.J.) was recrystd from warm alcohol. 2-
Ethoxyethanol (Cellosolve solvent, Union
Carbide, New York, N.Y.) was of industrial
grade.

ESTIMATED ERROR:
Temp: ±1.0°C (authors).
Soly: the mean of 3 runs was given (authors).

REFERENCES:
1. Restaino, F. A.; Martin, A. N.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)- (sulfisoxazole); C_{11}H_{13}N_{3}O_{3}S; [127-69-5]
(2) 2-Pyrrolidinone, 1-ethenyl-polymers (poly(vinyl pyrrolidone)); (C_{6}H_{9}NO)_{x}; [9003-39-8] K-15
(3) Ethanol; C_{2}H_{6}O; [64-17-5]

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>M x 10^2 sulfisoxazole solubilized by 1M vinyl-pyrrolidone equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.0</td>
<td>7.52</td>
</tr>
<tr>
<td>20.0</td>
<td>8.89</td>
</tr>
<tr>
<td>30.0</td>
<td>10.4</td>
</tr>
<tr>
<td>40.0</td>
<td>12.5</td>
</tr>
<tr>
<td>50.0</td>
<td>14.5</td>
</tr>
</tbody>
</table>

METHOD/APPARATUS/PROCEDURE:
After attaining equilibrium, sample solns were removed by a syringe and filtered quickly through a membrane filter (pore size 0.2 μ) and sulfisoxazole was assayed spectrophotometrically at 269 nm using a Hitachi Type 200-20 spectrophotometer. No significant absorbance was found for poly(vinyl pyrrolidone).

SOURCE AND PURITY OF MATERIALS:
Sulfisoxazole (Yamanouchi Pharmaceutical Co.) was of the Japanese Pharmacopeia IX grade. Poly(vinyl pyrrolidone) K-15 was from Daiichi Pure Chemicals Co., Tokyo. Abs EtOH was obtained by drying and distn of EtOH following the conventional procedures.

ESTIMATED ERROR:
Nothing specified

REFERENCES:


PREPARED BY:
R. Piekos
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-(sulfisoxazole);
\[ \text{C}_{11}\text{H}_{13}\text{N}_{3}\text{O}_{3}\text{S} \]; [127-69-5]
(2) Acetic acid, ethyl ester (ethyl acetate);
\[ \text{C}_{4}\text{H}_{8}\text{O}_{2} \]; [141-78-6]

ORIGINAL MEASUREMENTS:

VARIABLES:
One temperature: 25°C

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfisoxazole in ethyl acetate at 25°C is 15.4 mg/g
(5.76 x 10^{-2} \text{ mol kg}^{-1}, \text{ compiler}).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The phase solubility method was employed (1).

SOURCE AND PURITY OF MATERIALS:
Sulfisoxazole contained 0.14% impurities and produced two spots on a thin-layer chromatogram.
Purity of the ethyl acetate was not specified.

ESTIMATED ERROR:
Soly: ±0.3 mg/g (authors).
Temp: not specified.

REFERENCES:
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-(sulfisoxazole); C_{11}H_{13}N_{3}O_{3}S; [127-69-5]
2. Methane, trichloro-(chloroform); CHCl₃; [67-66-3]

**ORIGINAL MEASUREMENTS:**

Riess, W.

**VARIABLES:**

One temperature: 20°C

**EXPERIMENTAL VALUES:**

Solubility of sulfisoxazole in chloroform at 20°C is 80 mg% (3.0 x 10⁻³ mol dm⁻³ solution, compiler).

**PREPARED BY:**

R. Piekos

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

Nothing specified

**SOURCE AND PURITY OF MATERIALS:**

Nothing specified

**ESTIMATED ERROR:**

Nothing specified

**REFERENCES:**
### COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)- (sulfisoxazole); 
   
   $\text{C}_{11}\text{H}_{13}\text{N}_{3}\text{O}_{3}\text{S}; [127-69-5]$  

2. Methane, trichloro- (chloroform); 
   
   $\text{CHCl}_3; [67-66-3]$  

### ORIGINAL MEASUREMENTS:


### VARIABLES:

- One temperature: $30^\circ C$

### PREPARED BY:

R. Piekos

### EXPERIMENTAL VALUES:

Solubility of sulfisoxazole in chloroform at $30^\circ C$ is $2.40 \text{ mmol/L}$ ($0.641 \text{ g dm}^{-3}$, compiler).

### AUXILIARY INFORMATION

#### METHOD/APPARATUS/PROCEDURE:

Sulfisoxazole (0.5 g) was placed in an L-shaped tube together with 20 ml of chloroform. The mixt was shaken in a thermostat until equilibrium was attained. The sulfisoxazole was assayed in the supernatant spectrophotometrically at 545 nm on a Beckmann DU spectrophotometer. The results were taken from a calibration graph.

#### SOURCE AND PURITY OF MATERIALS:

Nothing specified

#### ESTIMATED ERROR:

- Soly: not specified
- Temp: $\pm 1^\circ C$ (authors)

#### REFERENCES:
COMPONENTS:
(1) Acetamide,N-[(4-aminophenyl)sulfonyl]-N-(3,4-dimethyl-5-isoxazolyl)-(N1-acetylsulfisoxazole); C13H15N3O4S; [80-74-0]
(2) Phosphoric acid, monopotassium salt; KH2PO4; [7778-77-0]
(3) Sodium hydroxide; NaOH; [1310-73-2]
(4) Water; H2O; [7732-18-5]

VARIABLES:

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility of N¹-acetylsulfisoxazole in Clark and Lubs buffer mixtures at 37°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg%</td>
</tr>
<tr>
<td>6.5</td>
<td>3.93</td>
</tr>
<tr>
<td>7.0</td>
<td>3.83</td>
</tr>
<tr>
<td>7.5</td>
<td>4.19</td>
</tr>
</tbody>
</table>

a calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
About 100 mg of N¹-acetylsulfisoxazole was placed in a flask and 100 cm³ of the buffer soln of a known pH was added. The mixt was vigorously agitated for 4 h in a water bath at 37.0±0.2°C and filtered through a Toyo No. 6 filter paper, keeping the temp at about 40°C. The first 10 cm³ of the filtrate was discarded and in the following 15 cm³, kept still at about 40°C, the sulfonamide concn was detd colorimetrically at 540 nm using a Tsuda reagent and a Beckman Model B spectrophotometer.

SOURCE AND PURITY OF MATERIALS:
N¹-acetylsulfisoxazole was synthesized by the authors and dried over CaCl₂.
The source and purity of the remaining materials was not specified.

ESTIMATED ERROR:
Sol: the error was below ±3% (authors).
Temp: ±0.2°C (authors); pH: not specified (a Beckman type G pH meter was used).

REFERENCES:
COMPONENTS:
(1) Acetamide, \(N-\{(4\text{-aminophenyl})\text{sulfonyl}\}-\ N-(3,4\text{-dimethyl}-5\text{-isoxazolyl})-\ (N^1\text{-acetylsulfisoxazole});\)
\(\text{C}_{13}\text{H}_{15}\text{N}_3\text{O}_4\text{S};\) [80-74-0]
(2) 1,2-Benzene dicarboxylic acid, monopotassium salt; \(\text{C}_8\text{H}_5\text{K}_2\text{O}_4;\) [877-24-7]
(3) Sodium hydroxide; \(\text{NaOH};\) [1310-73-2]
(4) Water; \(\text{H}_2\text{O};\) [7732-18-5]

VARIABLES:
\(\text{pH}\)

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility of (N^1\text{-acetylsulfisoxazole}) in Clark and Lubs buffer mixtures at 37°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg%</td>
</tr>
<tr>
<td>4.0</td>
<td>6.04</td>
</tr>
<tr>
<td>4.5</td>
<td>5.27</td>
</tr>
<tr>
<td>5.0</td>
<td>4.86</td>
</tr>
<tr>
<td>5.5</td>
<td>4.43</td>
</tr>
</tbody>
</table>

\(a\) calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
About 100 mg of \(N^1\text{-acetylsulfisoxazole}\) was placed in a flask and 100 cm\(^3\) of the buffer soln of a known pH was added. The mixt was vigorously agitated for 4 h in a water bath at 37±0.2°C and filtered through a Toyo No.6 filter paper, keeping the temp at about 40°C. The first 10 cm\(^3\) of the filtrate was discard-
d and in the following 15 cm\(^3\), kept still at about 40°C, the sulfonamide concn was detd colorimetrically at 540 nm using a Tausa reagent and a Beckman Model B spectrophotometer.

SOURCE AND PURITY OF MATERIALS:
\(N^1\text{-acetylsulfisoxazole}\) was synthesized by the authors and dried over \(\text{CaCl}_2\).
The source and purity of the remaining materials was not specified.

ESTIMATED ERROR:
Soly: the error was below ±3% (authors).
Temp: ±0.2°C (authors)
P H : not specified (a Beckman type G pH meter was used).

REFERENCES:
COMPONENTS:
(1) Acetamide, N-[4-[(3,4-dimethyl-5-isoxazolyl)amino]sulfanyl]phenyl]-(acetyl sulfisoxazole); C_{13}H_{15}N_{3}O_{4}S; [4206-74-0]
(2) Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH_{2}PO_{4}; [7778-77-0]
(4) Water; H_{2}O; [7732-18-5]

VARIABLES:

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility (mg/100 ml)</th>
<th>Solubility (10^{-2} mol dm^{-3})</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td>8</td>
<td>0.030</td>
</tr>
<tr>
<td>5.0</td>
<td>12</td>
<td>0.045</td>
</tr>
<tr>
<td>5.5</td>
<td>38</td>
<td>0.140</td>
</tr>
<tr>
<td>6.0</td>
<td>105</td>
<td>0.393</td>
</tr>
<tr>
<td>6.4</td>
<td>190</td>
<td>0.711</td>
</tr>
<tr>
<td>6.8</td>
<td>375</td>
<td>1.400</td>
</tr>
<tr>
<td>7.2</td>
<td>1040</td>
<td>3.891</td>
</tr>
</tbody>
</table>

*a calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Solns were prepd by adding an excess of acetyl sulfisoxazole to a 10 ml of buffer soln at each pH level in 18 x 150-mm test tubes, stoppering the tubes, and placing them in water bath at 37°C with gentle agitation for 24 h. The solute was then hydrolyzed with 5% H_{2}SO_{4} for 1 h to liberate the free sulfonamide. One-ml aliquot of the hydrolyzate was accurately pipetted into a volumetric flask for diln and analysis. The sulfonamide was assayed colorimetrically by the method of Bratton and Marshall as described in detail by Biamonte and Schneller (1). A standard curve was prepd using accurately prepd standard solutions.

SOURCE AND PURITY OF MATERIALS:
Neither source nor purity of the reagents were specified. Distilled water was used.

ESTIMATED ERROR:
Soly: av values of duplicate runs are reported (authors).
Temp and pH: not specified

REFERENCES:
### COMPONENTS:

1. Acetamide, N-[4-[[3,4-di-methyl-5-isoxazolyl]amino]sulfonyl]phenyl]- (N-acetylsulfafurazole)*<br>   \( \text{C}_{13}\text{H}_{15}\text{N}_{3}\text{O}_{4}\text{S} \); [4206-74-0]

2. Phosphoric acid, disodium salt; \( \text{Na}_2\text{HPO}_4 \); [7558-94-4]

3. Phosphoric acid, monopotassium salt; \( \text{KH}_2\text{PO}_4 \); [7778-77-0]

4. Water; \( \text{H}_2\text{O} \); [7732-18-5]

### VARIABLES:

- **pH**

### EXPERIMENTAL VALUES:

#### Solubility at 25°C

<table>
<thead>
<tr>
<th>pH</th>
<th>mg/l</th>
<th>mol dm⁻³</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5</td>
<td>250</td>
<td>8.08 x 10⁻⁴</td>
</tr>
<tr>
<td>7.5&lt;sup&gt;b&lt;/sup&gt;</td>
<td>6,893</td>
<td>2.228 x 10⁻²</td>
</tr>
</tbody>
</table>

<sup>a</sup>Calculated by compiler  
<sup>b</sup>Erroneous pH value of 7.0 is given in the article  
*Another common trivial name is acetyl sulfisoxazole.

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**

The earlier developed method (1) was used (personal communication). Satd solns of N⁴-acetylsulfafurazole* were prepd in phosphate buffers of pH 5.5 and 7.5 at 25°C. The concn of the solute was measured by means of a Spectra Physics 3500B high-performance liquid chromatograph equipped with a Model 748 column oven and a Pye-Unicam LC-UV spectrophotometric detector.

### SOURCE AND PURITY OF MATERIALS:

Neither source nor the purity of the materials was specified.

### ESTIMATED ERROR:

Soly: the detection limit of the solute by HPLC was 0.5 mg/l (authors). The errors in temp and pH were not specified.

### REFERENCES:

1. Hekster, Y.A.; Vree, T. B.; Damsma, J. E.; Friesen, W. T.  
COMPONENTS:
(1) Acetamide, N-[4-[(3,4-dimethyl-5-isoxazolyl)amino]sulfonyl]phenyl]-
(acetyl sulfafurazole)*; $C_{13}H_{15}N_3O_4S$; [4206-74-0]
(2) Phosphoric acid, disodium salt; $Na_2HPO_4$; [7558-94-4]
(3) 1,2,3-Propanetricarboxylic acid, 2-hydroxy- (citric acid); $C_6H_8O_7$; [77-92-9]
(4) Water; $H_2O$; [7732-18-5]

ORIGINAL MEASUREMENTS:
Biamonte, A. R.; Schneller, G. H.
1952, 41, 341-5.

PREPARED BY:
R. Piekos

VARIABLES: pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Initial pH of buffer</th>
<th>Solubility (mg/100 ml solution)</th>
<th>Solubility ($10^{-3}$ mol dm$^{-3}$ a)</th>
<th>Final pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td>6.0</td>
<td>0.19</td>
<td>4.5</td>
</tr>
<tr>
<td>5.0</td>
<td>17.3</td>
<td>0.56</td>
<td>5.0</td>
</tr>
<tr>
<td>6.0</td>
<td>126.1</td>
<td>4.08</td>
<td>6.0</td>
</tr>
<tr>
<td>7.0</td>
<td>757.9</td>
<td>24.50</td>
<td>6.7</td>
</tr>
</tbody>
</table>

a Calculated by compiler

*Another common trivial name is acetyl sulfisoxazole.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Acetyl sulfafurazole* was equilibrated with 50 ml of the buffer soln for 18 h at 37°C with agitation. The suspension was immediately filtered through a Whatman No. 1 paper. The compd was assayed in the filtrate after boiling for 15-20 min with 30% NaOH soln as sulfafurazole by the method of Bratton and Marshall (1) using a Beckman DU spectrophotometer, at 545 nm.

SOURCE AND PURITY OF MATERIALS:
Acetyl sulfafurazole*, mp 214.8-15.9°C, was supplied by the American Cyanamid Co, Calco Chem Div, Bound Brook, N.J. The source and purity of the remaining materials was not specified.

ESTIMATED ERROR: pH and temp: not specified. Accuracy of the anal method was illustrated by the following values: expected 2.003, 3.004, 4.006, 5.007 mg/100 ml; found 2.08, 3.06, 4.12, 5.10 resp.

REFERENCES:
*J. Biol. Chem.* 1939, 128, 537.
COMPONENTS:

(1) Acetamide, N-[4-[[3,4-dimethyl-5-isoxazolyl]amino]sulfonyl]phenyl]- (acetyl sulfisoxazole); C_{13}H_{15}N_{3}O_{4}S; [4206-74-0]
(2) Calcium chloride; CaCl_{2}; [10043-52-4]
(3) Magnesium chloride; MgCl_{2}; [7786-30-3]
(4) Phosphoric acid, monoammonium salt; NH_{4}H_{2}PO_{4}; [7722-76-1]
(5) Potassium chloride; KCl; [7447-40-7]
(6) Sodium chloride; NaCl; [7647-15-5]
(7) Urea; CH_{4}N_{2}O; [57-13-6]
(8) Water; H_{2}O; [7732-18-5]

VARIABLES: pH at 37°C

EXPERIMENTAL VALUES:
Solubility of acetyl sulfisoxazole in a solution containing CaCl_{2} 0.143, MgCl_{2} 0.121, NH_{4}H_{2}PO_{4} 0.300, KCl 1.660, NaCl 2.950 and urea 20 g/dm³ (synthetic urine, Mosher Vehicle) at 37°C

<table>
<thead>
<tr>
<th>Equilibrium pH</th>
<th>mg/100 ml as sulfisoxazole</th>
<th>10^2 mol dm⁻³ a</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td>30</td>
<td>0.097</td>
</tr>
<tr>
<td>5.0</td>
<td>44</td>
<td>0.160</td>
</tr>
<tr>
<td>5.5</td>
<td>70</td>
<td>0.230</td>
</tr>
<tr>
<td>6.0</td>
<td>160</td>
<td>0.520</td>
</tr>
<tr>
<td>6.5</td>
<td>560</td>
<td>1.810</td>
</tr>
<tr>
<td>7.0</td>
<td>1230</td>
<td>3.980</td>
</tr>
</tbody>
</table>

a calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Excess acetyl sulfisoxazole was added to aliquots of synthetic urine solns and 1% H_{3}PO_{4} or 1% NaOH solns were used to adjust the pH to the required value. The solns were agitated for 24 h with addn of acid or base to keep them at the desired pH level until equilibrium was attained. Then the solns were filtered and in aliquots the acetyl sulfonamide was assayed spectrophotometrically by the method described by Biamonte and Schneller (1). Before detn the soln was refluxed with 5% H_{2}SO_{4} for 1 h to liberate the free amino compound.

SOURCE AND PURITY OF MATERIALS:
Nothing specified

ESTIMATED ERROR:
Soly: average values of 2 detns were given.
Temp: not specified.
pH : not specified.

REFERENCES:
### COMPONENTS:

<table>
<thead>
<tr>
<th>Component</th>
<th>Formula</th>
<th>CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Acetamide, ( \text{N} -4-[[3,4\text{-dimethyl}-5\text{-isoxazolyl}\text{amino}]\text{[sulfonyl]phenyl}]\text{- (acetetyl sulfoxazole)}}</td>
<td>( \text{C}<em>{13}\text{H}</em>{15}\text{N}<em>{3}\text{O}</em>{4}\text{S} )</td>
<td>[4206–74–0]</td>
</tr>
<tr>
<td>(2) Methane, trichloro- (chloroform)</td>
<td>( \text{CHCl}_{3} )</td>
<td>[67–66–3]</td>
</tr>
</tbody>
</table>

### VARIABLES:

- One temperature: 25°C

### EXPERIMENTAL VALUES:

Solubility of acetyl sulfoxazole in chloroform at 25°C is 15.5 mg/g

\( 5.01 \times 10^{-2} \text{ mol kg}^{-1} \), compiler.

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**

The phase solubility method was employed (1).

**SOURCE AND PURITY OF MATERIALS:**

Acetyl sulfoxazole contained 0.02% impurities and produced one spot in a thin-layer chromatogram. Source and purity of the chloroform was not specified.

**ESTIMATED ERROR:**

- Soly: \( \pm 0.3 \text{ mg/g} \) (authors)
- Temp: not specified.

**REFERENCES:**

COMPONENTS: ORIGINAL MEASUREMENTS:

1. Acetamide, N-[(4-acetlamino)phenyl]-sulfonyl]-N-(3,4-dimethyl-5-isoxazolyl)- (N¹, N⁴-diacetylsulfafurazole); C₁₅H₁₇N₃O₅S; [35943-12-5]
2. Phosphoric acid, disodium salt; Na₂HPO₄; [7558-94-4]
3. Phosphoric acid, monopotassium salt; KH₂PO₄; [7778-77-0]
4. Water; H₂O; [7732-18-5]

PREPARED BY: R. Piekos

VARIABLES: pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility at 25°C mg/l</th>
<th>10⁵ mol dm⁻³ a</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5</td>
<td>12.3</td>
<td>3.50</td>
</tr>
<tr>
<td>7.5</td>
<td>5.2</td>
<td>1.50</td>
</tr>
</tbody>
</table>

a Calculated by compiler
b Erroneous pH value of 7.0 is given in the article
* Another common trivial name is N¹,N⁴-diacetyl-sulfisoxazole

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The earlier developed method (1) was used (personal communication). Satd solns of N¹,N⁴-diacetylsulfafurazole were prepd in phosphate buffers of pH 5.5 and 7.5 at 25°C. The concn of the solute was measured by means of a Spectra Physics 3500B high-performance liquid chromatograph equipped with a Model 748 column oven and a Pye-Unicam LC-UV spectrophotometric detector.

SOURCE AND PURITY OF MATERIALS:
Neither source nor the purity of the materials was specified.

ESTIMATED ERROR:
Soly: the detection limit of the solute by HPLC was 0.5 mg/l (authors). The errors in temp and pH were not specified.

REFERENCES:
### COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-(2,5-dimethyl-2,3-dihydroisoxazolyl)-
   \[C_{11}H_{13}N_{3}O_{2}S; [51543-32-9]\]

2. Water; \(H_{2}O; [7732-18-5]\)

### ORIGINAL MEASUREMENTS:


### VARIABLES:

One temperature: 37°C

### PREPARED BY:

R. Piekos

### EXPERIMENTAL VALUES:

Solubility of 4-amino-N-(2,5-dimethyl-2,3-dihydroisoxazolyl)benzene-
   sulfonamide in water at 37°C is 7.59 mmol dm\(^{-3}\) solution.

### AUXILIARY INFORMATION

#### METHOD/APPARATUS/PROCEDURE:

The sulfonamide was detd in the aq soln (pH 6) by diazotization. No details were given.

#### SOURCE AND PURITY OF MATERIALS:

The sulfonamide was synthesized by the authors. Its purity was not specified. Deionized water was used.

#### ESTIMATED ERROR:

Soly: not specified.

Temp: ±1°C (authors).

#### REFERENCES:
### COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-(2,5-dimethyl-2,3-dihydroisoxazolyl)-; C_{11}H_{13}N_{3}O_{3}S; [51543-32-9]  
2. Methane, trichloro-; CHCl_{3}; [67-66-3]

### VARIABLES:

- One temperature: 37°C

### EXPERIMENTAL VALUES:

Solubility of 4-amino-N-(2,5-dimethyl-2,3-dihydroisoxazolyl)benzenesulfonamide in CHCl_{3} at 37°C is 29.7 mmol dm^{-3} solution.

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**
One ml of the CHCl_{3} soln of the sulfonamide at equilibrium was taken into a test tube. After evapn of the solvent, the residue was dissolved in 1N HCl, the soln was properly dild with deionized water, and the concn of the sulfonamide was detd by diazotization.

**SOURCE AND PURITY OF MATERIALS:**
The sulfonamide was synthesized by the authors. Its purity was not specified. Neither source nor purity of the CHCl_{3} was specified.

**ESTIMATED ERROR:**
- Solu: not specified.
- Temp: ±1°C (authors).

**REFERENCES:**

COMPONENTS:
1. Benzenesulfonamide, 4-amino-N-2-oxazolyl--; C₂H₉N₃O₃S; [17103-51-4]
2. Water; H₂O; [7732-18-5]

VARIABLES:
One temperature: 37°C

EXPERIMENTAL VALUES:

Solubility of 4-amino-N-2-oxazolylbenzenesulfonamide in water at 37°C
is 282 mg/100 cm³ solution (1.18 x 10⁻² mol dm⁻³, compiler).

REFERENCES:
### COMPONENTS:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)-; C₁₁H₁₃N₃O₅S; [729-99-7]</td>
</tr>
<tr>
<td>2</td>
<td>Hydrochloric acid; HCl; [7647-01-0]</td>
</tr>
<tr>
<td>3</td>
<td>Sodium chloride; NaCl; [7647-14-5]</td>
</tr>
<tr>
<td>4</td>
<td>Water; H₂O; [7732-18-5]</td>
</tr>
</tbody>
</table>

### VARIABLES:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>One temperature: 37°C</td>
</tr>
</tbody>
</table>

### EXPERIMENTAL VALUES:

Solubility of 4-amino-N-(4,5-dimethyl-2-oxazolyl)benzenesulfonamide in a 0.05 N HCl (ionic strength 0.1 with NaCl; pH 1.3) solution at 37°C is 6.10 mg/ml solution (2.28 x 10⁻² mol dm⁻³, compiler).

### AUXILIARY INFORMATION

### METHOD/APPARATUS/PROCEDURE:

Excess powd compd was equilibrated in a thermostat by rotating a vial contg the suspension for at least 48 h. The soln was filtered from excess solids at 37°C. The filtrate, after appropriate diln, was assayed spectrophotometrically.

### SOURCE AND PURITY OF MATERIALS:

The sulfonamide was a brand of Normark-Werke GmbH, Hamburg, Germany. Its purity was not specified. Purity of the remaining materials was not specified.

### ESTIMATED ERROR:

Soly: the average of 2 or more detns is given (authors). Temp: not specified.

### REFERENCES:

COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)-(sulfuno); C_{11}H_{13}N_{3}O_{3}S; [729-99-7]
(2) Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH_{2}PO_{4}; [7778-77-0]
(4) Water; H_{2}O; [7732-18-5]

VARIABLES: pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Crystalline form I</th>
<th>Crystalline form II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg% 10^3 mol dm^{-3}</td>
<td>mg% 10^3 mol dm^{-3}</td>
</tr>
<tr>
<td>6.0</td>
<td>96.1 3.595</td>
<td>87.6 3.277</td>
</tr>
<tr>
<td>7.3</td>
<td>167.7 6.274</td>
<td>145.6 5.447</td>
</tr>
</tbody>
</table>

a Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfonamide and the buffer soln were placed in a polyethylene vessel, agitated for 3.5 h under exclusion of oxygen, filtered, and the sulfonamide was assayed in the filtrate by uv spectrophotometry. The solid phase was examd for identity of the cryst form.

SOURCE AND PURITY OF MATERIALS:
A comm available form II of sulfonamide was used. Form I was obtained by recrystn of form II from 2-propanol. Distilled water was used. The source and purity of the remaining materials was not specified.

ESTIMATED ERROR:
Soly: not specified
pH : not specified
Temp: ±0.5°C (authors)

REFERENCES:

PREPARED BY:
R. Piekos

ORIGINAL MEASUREMENTS:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)- (sulfuno); C₁₁H₁₃N₃O₃S; [729-99-7]
(2) Hydrochloric acid; HCl; [7647-01-0]
(3) 1,2,3-Propanetricarboxylic acid, 2-hydroxy-, disodium salt; C₆H₆Na₂O₇; [144-33-2]
(4) Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Kuhnert-Brandstätter, M.; Martinek, A.

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:
Solubility of crystalline forms I and II of sulfuno in a 0.066 M citrate buffer (according to Sørensen) of pH 3.8 at 20°C is 91.7 mg% (3.40 x 10⁻³ mol dm⁻³, compiler) and 84.6 mg% (3.16 x 10⁻³ mol dm⁻³, compiler), respectively.

METHOD/APPARATUS/PROCEDURE:
Sulfuno and the buffer soln were placed in a polyethylene vessel, agitated for 3.5 h under exclusion of oxygen, filtered, and the sulfonamide was assayed in the filtrate by uv spectrophotometry. The solid phase was examd thermomicroscopically for identity of the cryst form.

SOURCE AND PURITY OF MATERIALS:
A comm available form II of sulfuno was used. Form I was obtained by recrystn of form II form 2-propanol. Distilled water was used. The source and purity of the remaining materials was not specified.

ESTIMATED ERROR:
Soly: not specified
pH : not specified
Temp: ±0.5°C (authors)

REFERENCES:
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-(5-methyl-1,2,4-oxadiazol-3-yl)--; C₉H₁₀N₄O₅S; [723-47-7]
2. Water; H₂O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**

**VARIABLES:**
One temperature: 37°C

**PREPARED BY:**
R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of 4-amino-N-(5-methyl-1,2,4-oxadiazol-3-yl)benzenesulfonamide in water at 37°C is 113 mg/100 cm³ solution (4.44 x 10⁻³ mol dm⁻³, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
Excess sulfonamide in water was heated and stirred on a steam bath for 30 min. The suspension was then agitated for 24 h in a thermostat. A sample of the satd soln was withdrawn through a glass filter, dild, and analyzed by the Marshall method (1) using a General Electric recording spectrophotometer for comparing the colors developed with those of the standards.

**SOURCE AND PURITY OF MATERIALS:**
The sulfonamide, mp 211-13°C, was prepd by the authors. Anal: %C 42.7 (calcd 42.5); %H 3.8 (3.9); %N 22.2 (22.0). Purity of the water was not specified.

**ESTIMATED ERROR:**
Nothing specified

**REFERENCES:**
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-(4-methyl-1,2,5-oxadiazol-3-yl)-; C₉H₁₀N₄O₃S; [17103-53-6]

(2) Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:
J. Am. Chem. Soc. 1942, 64, 2902-5.

ORIGINAL MEASUREMENTS:

EXPERIMENTAL VALUES:

Solubility of 4-amino-N-(4-methyl-1,2,5-oxadiazol-3-yl)benzenesulfonamide in water at 37°C is 180 mg/100 cm³ solution (7.08 x 10⁻³ mol dm⁻³, compiler).

VARIABLES:
One temperature: 37°C

PREPARED BY:
R. Piekos

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Excess sulfonamide in water was heated and stirred on a steam bath for 30 min. The suspension was then agitated for 24 h in a thermostat. A sample of the satd soln was withdrawn through a glass filter, dild, and analyzed by the Marshall method (1) using a General Electric recording spectrophotometer for comparing the colors developed with those of the standards.

SOURCE AND PURITY OF MATERIALS:
The sulfonamide, mp 148-50°C (cor), was prepd by the authors. Anal: %C 42.3 (calc 42.5); %H 4.4 (3.9); %N 22.0 (22.0). Purity of the water was not specified.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
J. Pharmacob. 1939, 66, 4.
The solubility data available for sulfathiazole cover a 44 year span and are summarized in Table I.

**Table I: Solubility of Sulfathiazole in water at various temperature**

<table>
<thead>
<tr>
<th>Reference</th>
<th>293K</th>
<th>298K</th>
<th>303K</th>
<th>310K</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-</td>
<td>-</td>
<td>2.35(299K)</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>-</td>
<td>-</td>
<td>2.35(298.9K)</td>
<td>3.56</td>
</tr>
<tr>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>23.5</td>
</tr>
<tr>
<td>5</td>
<td>-</td>
<td>1.96*(299K)</td>
<td>-</td>
<td>3.76*</td>
</tr>
<tr>
<td>6</td>
<td>1.45*</td>
<td>-</td>
<td>-</td>
<td>3.45*</td>
</tr>
<tr>
<td>7</td>
<td>2.7*</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>2.0(291-292K)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3.72</td>
</tr>
<tr>
<td>10</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.9</td>
</tr>
<tr>
<td>11</td>
<td>-</td>
<td>-</td>
<td>2.43</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>-</td>
<td>-</td>
<td>2.27</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>1.76*(Form II)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14</td>
<td>-</td>
<td>-</td>
<td>2.350(α)</td>
<td>3.055(α,308K)</td>
</tr>
<tr>
<td>15</td>
<td>-</td>
<td>1.68</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>16</td>
<td>-</td>
<td>1.837(α)</td>
<td>-</td>
<td>3.122(α,308K)</td>
</tr>
<tr>
<td>17</td>
<td>1.7</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>18</td>
<td>1.394(pm)</td>
<td>1.837(pm)</td>
<td>2.400(pm)</td>
<td>3.122(pm,308K)</td>
</tr>
<tr>
<td>19</td>
<td>-</td>
<td>-</td>
<td>2.34</td>
<td>-</td>
</tr>
<tr>
<td>20</td>
<td>1.5*</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>21</td>
<td>-</td>
<td>-</td>
<td>2.5</td>
<td>-</td>
</tr>
<tr>
<td>22</td>
<td>-</td>
<td>1.821(α)</td>
<td>2.326(α)</td>
<td>3.094(α,308K)</td>
</tr>
<tr>
<td>23</td>
<td>-</td>
<td>3.29(β)</td>
<td>4.308(β)</td>
<td>5.354(β,308K)</td>
</tr>
<tr>
<td>24</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2.56 (pH = 4)</td>
</tr>
<tr>
<td>25</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3.13</td>
</tr>
<tr>
<td>26</td>
<td>-</td>
<td>-</td>
<td>3.05</td>
<td>-</td>
</tr>
<tr>
<td>27</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3.44</td>
</tr>
<tr>
<td>28</td>
<td>-</td>
<td>1.3</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**pm = polymorphs**

The solubility of the most stable form (mp 473K) at various temperatures is dealt with initially followed by a discussion of the polymorphic forms and their effect on solubility. In the column of values at 293K, those of Weinstein and McDonald (7) and Becher and Leya (8) should be disregarded as being substantially higher than the rest and not considered further. The solubility reported by Kuhnert-Brandstätter and Martinek (13) of a form II (probably the same as "normal" sulfathiazole) is quite similar to those given for "normal" sulfathiazole. Since there is some question as to the identity of this form (13), the value was not considered further. The values of Ito and Sekiguchi (18) at the four temperatures, are not considered for the "normal" sulfathiazole, but for the alpha (α) form solubility discussion. The remaining values (6,15,17,20,28) were considered as potentially acceptable in deriving a pool of "good" values.

Sapozhnikova and Postovskii (6) used an equilibrium time of one hour was not considered further despite their reasonable values. The values of Miseta, Kedvesy and Solmecki (28), while no doubt at equilibrium (2 days), gave only an approximate solubility of one part in 3000, thus not considered as accurate as the other values given. The remaining values (15,17,20,28) are the pool of acceptable values. The recommended value for sulfathiazole at 293K is the average of the four values (15,17,20,28) and is given as 1.6 x 10⁻³ mol dm⁻³. Values given at 298K by two workers (22,26) were quite high. The solubility of the beta (β) form (22) is also quite high both at 303K and 308K. The values reported at 298K-299K (1,3,5) are not sufficiently similar to allow a recommended value since the value given in (3) is a repeat of the value given in (1).

Sulfathiazole has two crystalline forms, one melts at 493K, the other at 445K, which are expected to exhibit different solubilities (14,16,18,22, Sanchez (14) and Kanke
and Sekiguchi (22) specifically annotate the lower melting-point alpha form of this compound, and the values at 298K, 303K and 308K are very close to one another. Although Sekiguchi and Ito (16,18) do not specifically identify the solubility values for the alpha form, the similarity of the results leads to the probable conclusion that they refer to the lower melting point form. Thus, recommended values for the alpha form are 1.832 \times 10^{-3} \text{ mol dm}^{-3} \text{ at 298K}, 2.338 \times 10^{-3} \text{ mol dm}^{-3} \text{ at 303K}, and 3.098 \times 10^{-3} \text{ mol dm}^{-3} \text{ at 308K}. At 303K, the values (11,12,19,21) were close to lead to an average value of 2.4 \times 10^{-3} \text{ mol dm}^{-3}. This value should be compared with the recommended value of 2.338 \times 10^{-3} \text{ mol dm}^{-3} for the alpha form are quite similar. While there may be some doubt as to the crystalline form in the work of Bhattacharyya and Basu (11), there is no doubt that the Higuchi and Lach (12) used the higher melting point beta (\beta) form, to which recrystallization usually leads. Yamazaki et al. (19) did not specify the form of the sulfathiazole. Since there is some doubt about the forms used in these reports, the average value given above can only be considered tentative.

At body temperature, 310K, there were eight values reported (2,3,5,6,9,10,24,25,27). That given by Tréfouël (4) is obviously too high, and that of Kitao et al. (23) refers to pH = 4. Neish's (10) value is too low, as is that of Dubois and Tawashi (24) and were not considered further. The remaining values (2,3,5,6,9,25,27) were averaged, and a recommended value of 3.6 \times 10^{-3} \text{ mol dm}^{-3} for sulfathiazole in water at 310K can be given.

The solubility of sulfathiazole in aqueous buffers have been studied at two temperatures (29,30,31) as shown in Table II. There are slight differences in the pH values reported and it is assumed that pH 5.9 and pH 6.9 can be considered as pH 6 and pH 7 for purposes of this evaluation.

Table II: Solubility of Sulfathiazole in aqueous buffer systems at various pH values at two temperatures

<table>
<thead>
<tr>
<th>Reference</th>
<th>pH</th>
<th>293K</th>
<th>310K</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>6**</td>
<td>2.115</td>
<td>3.76</td>
</tr>
<tr>
<td>30</td>
<td>6**</td>
<td>2.00</td>
<td>-</td>
</tr>
<tr>
<td>31</td>
<td>6**</td>
<td>3.68</td>
<td>-</td>
</tr>
<tr>
<td>29</td>
<td>7</td>
<td>2.820</td>
<td>6.306</td>
</tr>
<tr>
<td>30</td>
<td>7</td>
<td>2.54</td>
<td>-</td>
</tr>
<tr>
<td>31</td>
<td>7***</td>
<td>-</td>
<td>7.99</td>
</tr>
<tr>
<td>29</td>
<td>8</td>
<td>5.640</td>
<td>-</td>
</tr>
<tr>
<td>30</td>
<td>8</td>
<td>4.90</td>
<td>-</td>
</tr>
</tbody>
</table>

* pH = 5.906 ** pH = 5.9 *** pH = 6.9

At a pH 6,7,8 Krüger-Thiemer (29) and Pulver and Suter (30) give values at 293K, showing good agreement at pH 6 and 7, but a 15% variance at a pH = 8. At pH 6 and 7, the recommended values at 293K are 2.06 \times 10^{-3} \text{ mol dm}^{-3} and 2.68 \times 10^{-3} \text{ mol dm}^{-3} respectively. At 310K, Krüger-Thiemer (29) and Langecker (31) provided a set of values at pH 6, and the recommended value is 3.72 \times 10^{-3} \text{ mol dm}^{-3}.

It is instructive to compare the values in buffer and water: the value in water at 293K is 1.62 \times 10^{-3} \text{ mol dm}^{-3}, which is about 78% of that in buffer at pH 6. At neutrality, the water solubility is about 60% of the buffer value. At 310K, however, the aqueous value is 96% of the buffer value. There are several problems associated with the above data at different pH (29-31). There is no recognition of the change in the pkw with temperature which would somewhat affect the pH values in the Table. Pulver and Suter (31) do not give any specific information for methods, purity and error. Krüger-Thiemer (29) use a two hour equilibrium time at 293K which may not be sufficient. In Langecker's work (31) there is an inconsistency in the tabular data which show a higher solubility at pH 4.9 compared to pH 5.9. However, Krüger-Thiemer (29) show an increasing solubility with increasing pH. Therefore, these results while interesting are magnitude directing and considered approximate.

REFERENCES:

(7) Weinstein, I.; McDonald, A. Science 1945, 101, 445.
(8) Becher, R.; Leya, S. Experientia 1946, 2, 459-60.
(10) Neish, W.J.P.; Reo. trum. chim. 1948, 87, 361-71.
(11) Bhattacharyya, R.; Basu, U.P. Indian Pharmacist 1950, 6(3), 77-8, 86.
REFERENCES:

COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₅N₃O₂S₂; [72-14-0]
(2) Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Lott, W. A.; Bergeim, F. H.

VARIABLES:
One temperature: 26°C

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in water at 26°C is about 60 mg/100 cm³
(2.35 x 10⁻³ mol dm⁻³, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Nothing specified

SOURCE AND PURITY OF MATERIALS:
Sulfathiazole, mp 197-7.5°C (uncor) and 202.0-2.5°C (cor) was prepd by the authors. Purity of the water was not specified.

ESTIMATED ERROR:
Nothing specified

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
C₉H₉N₃O₂S₂; [72-14-0]
(2) Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Roblin, R. O., Jr.; Williams, J. H.;
Winnek, P. S.; English, J. P.

VARIABLES:
One temperature: 37°C

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in water at 37°C is 94 mg/100 cm³ solution
( 3.7 x 10⁻³ mol dm⁻³, compiler ).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Excess sulfathiazole in water was heated and stirred on a steam bath for 30 min. The suspension was then agitated for 24 h in a thermostat at 37°C. A sample of the satd soln was withdrawn through a glass filter, diluted, and analyzed by the Marshall method (1) using a General Electric recording spectrophotometer for comparing the colors developed with those of the standards.

SOURCE AND PURITY OF MATERIALS:
Sulfathiazole had mp of 201-2°C (cor), consistent with the literature data. Purity of the water was not specified.

ESTIMATED ERROR:
Nothing specified

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
C<sub>9</sub>H<sub>9</sub>N<sub>3</sub>O<sub>2</sub>S<sub>2</sub>; [72-14-0]
(2) Water; H<sub>2</sub>O; [7732-18-5]

VARIABLES:
One temperature: 37°C

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in water at 37°C is 0.91 g/liter
(3.56 x 10<sup>-3</sup> mol dm<sup>-3</sup>, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A mixt of sulfathiazole and water was agitated for 24 hours at 37°C.

SOURCE AND PURITY OF MATERIALS:
Source and purity of sulfathiazole was not specified.
Distilled water was used.

ESTIMATED ERROR:
Nothing specified

REFERENCES:
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₇N₃O₂S₂; [72-14-0]</td>
<td>Trefouël, M.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 37°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

**EXPERIMENTAL VALUES:**

Solubility of sulfathiazole in water at 37°C is 0.6 part per 100 parts water (2.35 x 10^-2 mol kg^-1, water, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
Sulfathiazole was diazotized, coupled with N-naphthyl-1-N-diethyl-3-propylenediamine and assayed colorimetrically.

**SOURCE AND PURITY OF MATERIALS:**
Nothing specified

**ESTIMATED ERROR:**
Nothing specified

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
C₉H₉N₃O₂S₂; [72-14-0]
(2) Water; H₂O; [7732-18-5]

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Solubility</th>
<th>10⁻³ mol kg⁻¹ water a</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>0.0502</td>
<td>1.96</td>
</tr>
<tr>
<td>37</td>
<td>0.0960</td>
<td>3.76</td>
</tr>
</tbody>
</table>

a Calculated by compiler

AUXILIARY INFORMATION

METHOD/Apparatus/PROCEDURE:
A small tinted glass container contg excess sulfathiazole in water was shaken in a water bath thermostat for 24 h. The satd soln was then filtered by aspiration through a washed and dried asbestos filter stick into a weighed weighing bottle. The entire app was kept at the temp at which the compd was dissolved. The amt dissolved was then detd by the method of Bratton and Marshall (1), using a photoelectric colorimeter.

SOURCE AND PURITY OF MATERIALS:
Neither source nor purity of sulfathiazole was specified.
CO₂-free distd water was used.

ESTIMATED ERROR:
Soly: not specified
Temp: ±0.1° C (authors)

REFERENCES:
J. Biol. Chem. 1939, 128, 537.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2
thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
(2) Water; H₂O; [7732-18-5]

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Weight%</th>
<th>10³ mol kg⁻¹ water</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>0.0370</td>
<td>1.45</td>
</tr>
<tr>
<td>37</td>
<td>0.0880</td>
<td>3.45</td>
</tr>
<tr>
<td>50</td>
<td>0.1680ᵇ</td>
<td>6.59</td>
</tr>
<tr>
<td>75</td>
<td>0.530</td>
<td>20.87</td>
</tr>
<tr>
<td>99</td>
<td>1.20; 1.32</td>
<td>47.57 ; 52.39</td>
</tr>
</tbody>
</table>

ᵃ calculated by compiler
ᵇ calculated from the heat of dissolution

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfathiazole was dissolved in water to form a satd soln which was occasionally agi-
tated in a glass vessel immersed in a ther-
mostat. The equilibrium was usually attain-
ed after 1 h. Five to 100-cm³ samples of
the satd soln were placed in Pt crucibles
or dishes and evapd to dryness at temps
lower than 110-115° C. The residue was
dried to const wt at 105-110° C and weighed.

SOURCE AND PURITY OF MATERIALS:
Pure, recrystd sulfathiazole was used.
Its mp conformed to that reported in the
literature.
Purity of the water was not specified.

ESTIMATED ERROR: Soly: quite reliable re-
sults were obtained over the temp range
20-75° C. At higher temps the accuracy was
poor due to evapn of water during sampling
(authors). Temp: ±0.05° C (authors).

REFERENCES:
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); [72-14-0]</td>
<td>Weinstein, L.; McDonald, A.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 20°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

**EXPERIMENTAL VALUES:**

Solubility of sulfathiazole in water at 20°C is 69 mg/100 cm³ water (2.7 x 10⁻³ mol kg⁻¹, compiler).

**AUXILIARY INFORMATION**

<table>
<thead>
<tr>
<th>METHOD/APPARATUS/PROCEDURE:</th>
<th>SOURCE AND PURITY OF MATERIALS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing specified</td>
<td>Nothing specified</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESTIMATED ERROR:</th>
<th>REFERENCES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing specified</td>
<td></td>
</tr>
</tbody>
</table>
**COMPONENTS:**

| (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0] |
| (2) Water; H₂O; [7732-18-5] |

**ORIGINAL MEASUREMENTS:**

**VARIABLES:**

| One temperature: 18-19°C |

**PREPARED BY:**
R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfathiazole in water at room temperature (18-19°C) is 50 mg% (2.0 x 10⁻³ mol dm⁻³, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
After standing for more than two days the soln of sulfathiazole in water was filtered and sulfathiazole was assayed in the filtrate colorimetrically by the method of Druey and Oesterheld (1).

**SOURCE AND PURITY OF MATERIALS:**
Nothing specified

**ESTIMATED ERROR:**
Nothing specified

**REFERENCES:**
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); 
   \( \text{C}_9\text{H}_9\text{N}_3\text{O}_2\text{S}_2 \); \([72-14-0]\) 
2. Water; \( \text{H}_2\text{O} \); \([7732-18-5]\)

**ORIGINAL MEASUREMENTS:**

Langecker, H. 
_Arch. Exptl. Path. Pharmacol._ 1948, 
206, 291-301.

**VARIABLES:**

One temperature: 37°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfathiazole in water at 37°C is 95 mg% (3.721 x 10^{-3} mol dm^{-3}, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

An excess of sulfathiazole was boiled with water and left for 24 h in a vessel protected from access of CO₂. The concn of sulfanilamide was detd by the method of Bratton and Marshall (1) using a Havemann colorimeter (2), as well as by microanal detn of the solid residue.

**SOURCE AND PURITY OF MATERIALS:**

Nothing specified

**ESTIMATED ERROR:**

Nothing specified

**REFERENCES:**

   _J. Biol. Chem._ 1939, 128, 537.
**COMPONENTS:**

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); 
C₉H₉N₃O₃S₂; [72-14-0]

(2) Water; H₂O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**

Neish, W. J. P. *Rec. trav. chim.*

**VARIABLES:**

One temperature: 37°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfathiazole in water at 37°C is 490 mg/ml

(1.9 x 10⁻³ mol dm⁻³, compiler).

**METHOD/APPARATUS/PROCEDURE:**

A suspension of sulfathiazole in water was kept for 5 h at 37°C and 1 h at room temp before filtration. Soly was detd by the Westfall's method (1) based on diazotization of the sulfonamide, coupling with Na 2-naphthol-3,6-disulfonate and comparing the color with that of a satd soln in a Klett colorimeter.

**SOURCE AND PURITY OF MATERIALS:**

Sulfathiazole: not specified.
The distd water was used.

**ESTIMATED ERROR:**

Nothing specified.

**REFERENCES:**

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
C₉H₉N₃O₂S₂; [72-14-0]
(2) Water; H₂O; [7732-18-5]

VARIABLES:

One temperature: 30°C

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in water at 30°C is 62 mg per 100 ml
( 2.43 x 10⁻³ mol dm⁻³, compiler ).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A weighed sample of sulfathiazole was placed in a clean reagent bottle and a known vol of water was added. The mixt was shaken in a mech shaker at 80-100 strokes/min. After at least 24 h the mixt was filtered through a clean, dried and weighed sintered-glass crucible. At the end of the filtration the crucible was washed with about 1 ml of water, dried at 105°C for 2-3 h, cooled, and weighed to const wt.

ORIGINAL MEASUREMENTS:
Bhattacharyya, R.; Basu, U. P.
Indian Pharmacist 1950, 6(3), 77-8, 86.

PREPARED BY:
R. Piekos

REFERENCES:

SOURCE AND PURITY OF MATERIALS:
Neither source nor purity of the sulfathiazole was not specified.
Doubly distd water was used.

ESTIMATED ERROR:
Soly: not specified
Temp: ±0.2°C (authors)
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
</table>
| (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₈N₃O₂S₂; [72-14-0] | Higuchi, T.; Lach, J. L.  
1945, 43, 349-54. |
| (2) Water; H₂O; [7732-18-5] | |

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 30°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
</tr>
</thead>
</table>

Solubility of sulfathiazole in water at 30°C is $2.27 \times 10^{-3}$ mol dm$^{-3}$ solution (0.58 g dm$^{-3}$, compiler).

<table>
<thead>
<tr>
<th>AUXILIARY INFORMATION</th>
</tr>
</thead>
</table>

**METHOD/APPARATUS/PROCEDURE:**
Excess sulfathiazole (75 mg) was placed in a 125-ml glass-stoppered bottle together with 50 ml of water. The bottle was placed in a mech shaker in a const temp bath and equilibrated for 8 h at 30°C. Aliquot of the supernatant liquid was analyzed for the sulfonamide by the method of Bratton and Marshall (1).

**SOURCE AND PURITY OF MATERIALS:**
Recrystd sulfathiazole (U.S.P.), mp 201-2°C and distilled water were used.

**ESTIMATED ERROR:**
Nothing specified.

**REFERENCES:**
*J. Biol. Chem.* 1939, 128, 537.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
(2) Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:

VARIABLES:
Temperature

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Crystalline form I</th>
<th>Crystalline form II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>g/100 g solution</td>
<td>10² mol kg⁻¹ solution</td>
</tr>
<tr>
<td>20.0</td>
<td>0.090</td>
<td>0.352</td>
</tr>
<tr>
<td>30.0</td>
<td>0.130</td>
<td>0.509</td>
</tr>
<tr>
<td>30.5</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>40.0</td>
<td>0.180</td>
<td>0.705</td>
</tr>
<tr>
<td>50.0</td>
<td>0.265</td>
<td>1.038</td>
</tr>
<tr>
<td>59.5</td>
<td>0.410</td>
<td>1.606</td>
</tr>
<tr>
<td>69.5</td>
<td>0.610</td>
<td>2.389</td>
</tr>
<tr>
<td>70.0</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

aNumerical data received from the authors
bCalculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfathiazole and water were placed in a polyethylene vessel, agitated for 3 h, filtered, and the sulfonamide was assayed in the filtrate gravimetrically. The solid phase was examined thermomicroscopically for identity of the crystal form.

SOURCE AND PURITY OF MATERIALS:
A comm available form II of sulfathiazole was used. Form I was obtained by keeping the comm reagent at 170°C for 2 h. Distilled water was used.

ESTIMATED ERROR:
Soly: not specified.
Temp: ±0.5°C (authors).

REFERENCES:
COMPONENTS: ORIGINAL MEASUREMENTS:

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
  C₉H₉N₃O₂S₂; [72-14-0]
(2) Water; H₂O; [7732-18-5]

VARIABLES: PREPARED BY:

Temperature R. Piekos

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Solubility of crystalline form A of sulfathiazole</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg/1000 cm³ solution</td>
</tr>
<tr>
<td>30</td>
<td>600.00</td>
</tr>
<tr>
<td>35</td>
<td>780.00</td>
</tr>
<tr>
<td>40</td>
<td>1025.00</td>
</tr>
<tr>
<td>45</td>
<td>1310.00</td>
</tr>
<tr>
<td>50</td>
<td>1750.00</td>
</tr>
</tbody>
</table>

* Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The soly was detd by the std Hill method (1): two 0.50-mg samples of sulfathiazole were placed in a 100-ml conical test tubes together with 35 ml of water and stoppered. One of the solns was heated to 55°C and the other kept at a given temp. Both solns were then kept in a const temp bath. Five-ml samples were withdrawn through a filter into 500-ml flasks, dild to the mark with water and sulfathiazole was assayed at 283 nm using a Beckman DU spectrophotometer.

SOURCE AND PURITY OF MATERIALS:
Cryst form A of sulfathiazole was prep by moistening a sample of a FNAR grade sulfathiazole with abs EtOH followed by drying the sample for 4 h at 60°C under vacuum. Microscopic detn of the mp showed the specimen to contain 100% of form A, mp 173-5°C. Purity of the water was not specified.

ESTIMATED ERROR:
Soly: not specified.
Temp: ±0.01°C (author).

REFERENCES:
**COMPONENTS:**

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
   C₉H₉N₃O₂S₂; [72-14-0]
(2) Water; H₂O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**


**VARIABLES:**

One temperature: 20°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfathiazole in water at 20°C is 0.043 g/100 ml
(1.68 x 10⁻³ mol dm⁻³, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

An earlier described method was employed (1) whereby a small excess of sulfathiazole was equilibrated with 20 ml of water for 8 h in a 50-ml test tube. Aliquots were withdrawn through a filter and sulfathiazole was assayed bromatometrically.

**SOURCE AND PURITY OF MATERIALS:**

Nothing specified

**ESTIMATED ERROR:**

Soly: not specified
Temp: ±0.1°C (authors).

**REFERENCES:**

COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
  C9H9N3O2S2; [72-14-0]
(2) Water; H2O; [7732-18-5]

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Solubility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10^3 mol dm^-3</td>
</tr>
<tr>
<td>15</td>
<td>1.047</td>
</tr>
<tr>
<td>25</td>
<td>1.837</td>
</tr>
<tr>
<td>35</td>
<td>3.122</td>
</tr>
</tbody>
</table>

aCalculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
In a 200-ml egg-plant type flask, immersed in a thermostat, an excess of sulfathiazole was placed with 100 ml of redistd water (pH 5.7~5.9) which was previously kept at appropriate temp. Immediately after addn of water, the mixt was vigorously agitated with an elec stirrer. Aliquots were withdrawn at certain time intervals with a pipet equipped with a filter, and the concn of solute was detd spectrophotometrically at 283 mμ.

SOURCE AND PURITY OF MATERIALS:
Sulfathiazole was a comm product of J.P. grade. The most stable polymorphic modification was used.
Redistd water was used.

ESTIMATED ERROR:
Soly: not specified
Temp: ±0.05°C (authors)

REFERENCES:

ORIGINAL MEASUREMENTS:
Sekiguchi, K.; Ito, K.

PREPARED BY:
R. Piekos
### COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
   \[ \text{C}_9\text{H}_9\text{N}_3\text{O}_2\text{S}_2; \quad [72-14-0] \]
2. Water; \( \text{H}_2\text{O}; \quad [7732-18-5] \)

### ORIGINAL MEASUREMENTS:

Gusyskov, V.P.; Likhol'ot, N.M.; Kutna, I.M.
*Farm. Zh. (Kiev) 1967, 22(3), 34-9.*

### VARIABLES:

| One temperature: 20°C |

### EXPERIMENTAL VALUES:

Solubility of sulfathiazole in water at 20°C is 0.043 g/100 ml

\[ (1.7 \times 10^{-3} \text{ mol dm}^{-3}, \text{compiler}) \]

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**

An excess of sulfathiazole in water was equilibrated for 24 h in an ampul immersed in a water thermostat. Aliquots of the satd soln were withdrawn through a filter and the sulfathiazole content was assayed in the filtrate photometrically.

**SOURCE AND PURITY OF MATERIALS:**

Sulfathiazole conformed to the requirements of the State Pharmacopeia IX.

Purity of the water was not specified.

**ESTIMATED ERROR:**

Soly: not specified.

Temp: ±0.1°C (authors).

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
C_9H_7N_3O_2S_2; [72-14-0]
(2) Water; H_2O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Ito, K.; Sekiguchi, K.

VARIABLES:
Temperature

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>10^3 mol dm^-3 soln</th>
<th>g dm^-3 a</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>1.394</td>
<td>0.3559</td>
</tr>
<tr>
<td>25</td>
<td>1.837</td>
<td>0.4690</td>
</tr>
<tr>
<td>30</td>
<td>2.400</td>
<td>0.6127</td>
</tr>
<tr>
<td>35</td>
<td>3.122</td>
<td>0.7971</td>
</tr>
</tbody>
</table>

a Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The earlier described method (1) was used: in a 200-ml egg-plant type flask immersed in a thermostat, an excess of sulfathiazole was placed with 100 ml of distd water which was previously kept at appropriate temp. Immediately after addn of water the mixt was vigorously agitated by an elec stirrer. Aliquots were withdrawn at certain time intervals with a pipet equipped with a filter and the concn of solute was detd spectrophotometrically at 283 mµ.

SOURCE AND PURITY OF MATERIALS:
Polymorphic modifications of sulfathiazole (source not specified) were prepd by the method of Grove (2). Distd water was used.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
1. Sekiguchi, K.; Ito, K.
2. Grove, D. C.; Keenan, G. L.
   J. Am. Chem. Soc. 1941, 63, 97.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
  C₉H₉N₃O₂S₂; [72-14-0]
(2) Water; H₂O; [7732-18-5]

VARIABLES:
One temperature: 30°C

EXPERIMENTAL VALUES:
Solubility of sulfathiazole in water at 30°C is 2.34 mmol/L
(0.597 g dm⁻³, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfathiazole (0.5 g) was placed in an L-shaped tube together with 20 ml of water. The mixt was then shaken in a thermostat until equilibrium was attained. The sulfathiazole was then assayed in the supernatant spectrophotometrically at 545 nm on a Beckman DU spectrophotometer. The results were taken from a calibration graph.

SOURCE AND PURITY OF MATERIALS:
Nothing specified

ESTIMATED ERROR:
Soly: not specified
Temp: ±1°C (authors)

REFERENCES:
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
2. Water; H₂O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**

Shkadova, A. I.

**VARIABLES:**

One temperature: 20°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfathiazole in water at 20°C is 0.15 x 10⁻² mol/kg

(3.8 x 10⁻² g/100 g, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

A satd aqueous soln of sulfathiazole was equilibrated in a water thermostat at 20±0.1°C. The concn of sulfathiazole was detd by alkalimetric titration.

**SOURCE AND PURITY OF MATERIALS:**

Purity of sulfathiazole conformed to the requirements of the State Pharmacopeia IX. Distd water was used.

**ESTIMATED ERROR:**

Soly: not specified.
Temp: ±0.1°C (author).

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
(2) Water; H₂O; [7732-18-5]

VARIABLES:
One temperature: 30°C

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in water at 30°C is 0.065 g/100 g
(2.5 x 10⁻³ mol kg⁻¹, compiler).

METHOD/APPARATUS/PROCEDURE:
An excess of the amount of the recrystd sulfathiazole needed to produce a satd soln was placed in a volumetric flask with water and agitated in a water bath at 30°C. Duplicate samples were withdrawn at 12-24 h intervals, filtered through a 0.45-μ Millipore filter, and analyzed spectrophotometrically.

SOURCE AND PURITY OF MATERIALS:
Sulfathiazole (source not specified) was purified by crystallization.
Purity of the water was not specified.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
Mehta, S. C.; Bernardo, P. D.; Higuchi, W. I.; Simonelli, A. P.

PREPARED BY:
R. Piekos
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
   \( \text{C}_9\text{H}_9\text{N}_3\text{O}_2\text{S}_2; \) [72-14-0]
2. Water; \( \text{H}_2\text{O}; \) [7732-18-5]

**ORIGINAL MEASUREMENTS:**
Kanke, M.; Sekiguchi, K.

**VARIABLES:**
Temperature

**PREPARED BY:**
R. Piekos

**EXPERIMENTAL VALUES:**

<table>
<thead>
<tr>
<th>( t/°C )</th>
<th>( \alpha )-form</th>
<th>( \beta )-form</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( g/\text{liter} ) ( 10^3 \text{ mol dm}^{-3} )</td>
<td>( g/\text{liter} ) ( 10^3 \text{ mol dm}^{-3} )</td>
</tr>
<tr>
<td>25</td>
<td>0.465</td>
<td>0.840</td>
</tr>
<tr>
<td>30</td>
<td>0.594</td>
<td>1.100</td>
</tr>
<tr>
<td>35</td>
<td>0.790</td>
<td>1.367</td>
</tr>
<tr>
<td>40</td>
<td>1.040</td>
<td>1.690</td>
</tr>
<tr>
<td>45</td>
<td>1.350</td>
<td>2.115</td>
</tr>
<tr>
<td>49</td>
<td>1.683</td>
<td>2.544</td>
</tr>
</tbody>
</table>

\( ^a \)Calculated by compiler

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
About 1.5 g of sulfathiazole was placed in 100 ml of water and agitated at 600 rpm. Aliquots of the soln were taken with a glass syringe at short time intervals at the beginning of each expt and then at about hourly intervals until equilibrium was attained. The sample soln was then immediately filtered through a 0.45-\( \mu \) membrane filter and a carefully measured aliquot was dild for spectrophotometric assay on a Hitachi Perkin-Elmer 139 spectrophotometer at 283 nm.

**SOURCE AND PURITY OF MATERIALS:**
\( \alpha \)-Sulfathiazole: comm product of the JP VII grade was recrystd from distd water. \( \beta \)-Sulfathiazole, mp 200-20°C, was recrystd from PrOH. Both forms were characterized by instrumental method.

Purity of the water was not specified.

**ESTIMATED ERROR:**
Nothing specified.

**REFERENCES:**
### COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0]
2. Water; $H_2O$; [7732-18-5]

### ORIGINAL MEASUREMENTS:


### VARIABLES:

One temperature: $37^\circ C$

### PREPARED BY:

R. Piekos

### EXPERIMENTAL VALUES:

Solubility of sulfathiazole in water at $37^\circ C$ is 2.56 mmol dm$^{-3}$ solution.

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**

Soly was detd by continuously adjusting the pH of the aq soln to 4 with 0.05 N NaOH. The concn of sulfathiazole was detd by diazotization after proper diln.

### SOURCE AND PURITY OF MATERIALS:

Comm available sulfathiazole (source not specified) was used as supplied. Deionized water was used.

### ESTIMATED ERROR:

Soly: not specified.
Temp: ±$1^\circ C$ (authors).

### REFERENCES:
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Water; H₂O; [7732-18-5]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 37°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility of sulfathiazole in water at 37°C is 8.00 x 10⁻⁴ g/ml (3.13 x 10⁻³ mol dm⁻³, compiler).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AUXILIARY INFORMATION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>METHOD/APPARATUS/PROCEDURE:</td>
<td>SOURCE AND PURITY OF MATERIALS:</td>
</tr>
<tr>
<td>Samples were filtered through a Millipore filter 0.45 μm and the amount of dissolved sulfathiazole was detd spectrophotometrically at 280 nm.</td>
<td>USP grade sulfathiazole without further treatment was used and distilled water.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESTIMATED ERROR:</th>
<th>REFERENCES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing specified</td>
<td></td>
</tr>
<tr>
<td>COMPONENTS:</td>
<td>ORIGINAL MEASUREMENTS:</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>(1) Benzene sulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₇N₃O₂S₂; [72-14-0]</td>
<td>Kaneniwa, N.; Watari, N.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 37°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility of sulfathiazole in water at 37°C is 0.879 mg/ml solution (3.44 x 10⁻³ mol dm⁻³, compiler).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AUXILIARY INFORMATION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>METHOD/APPARATUS/PROCEDURE:</td>
<td>An excess of sulfathiazole was placed in a flask contg 25 ml of water. The flask was shaken (2 strokes/s at the amplitude of 3 cm) in a thermostatically controlled water bath at 37°C. One-ml sample was withdrawn every 6 h (total equilibration period was 3-5 days) using a warmed Millipore filter syringe with a filter pore size of 0.45 μ (Millipore HAWP 01300) and the filtrate was dild with water and assayed spectrophotometrically (1).</td>
</tr>
<tr>
<td>SOURCE AND PURITY OF MATERIALS:</td>
<td>Commercial sulfathiazole of the Japanese Pharmacopeia grade and distd water were used.</td>
</tr>
<tr>
<td>ESTIMATED ERROR:</td>
<td>Soly: not specified. Temp: ±0.05°C (authors).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REFERENCES:</th>
<th></th>
</tr>
</thead>
</table>
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
    C₉H₉N₃O₂S₂; [72-14-0]
(2) Water; H₂O; [7732-18-5]

VARIABLES:
One temperature: 25°C

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in water at 25°C is 0.78 mg/ml water
( 3.05 x 10⁻³ mol dm⁻³ water, compiler ).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A weighed excess of sulfathiazole was placed in a 25-ml ampul contg 10 ml of water. The ampul was sealed and placed on a rotating shaft (42 rpm) immersed in a water bath at 25±1°C. Duplicate samples were withdrawn, filtered, and assayed spectrophotometrically at 283 nm.

SOURCE AND PURITY OF MATERIALS:
Sulfathiazole was of the BP 1963 purity. Purity of the water was not specified.

ESTIMATED ERROR:
Soly: not specified. Temp: ±1°C (authors)

REFERENCES:
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
   \(\text{C}_9\text{H}_9\text{N}_3\text{O}_7\text{SZ}\); [72-14-0]

2. Water; \(\text{H}_2\text{O}\); [7732-18-5]

**ORIGINAL MEASUREMENTS:**

Watari, N.; Kaneniwa, N.; Hanano, M.  

**VARIABLES:**

One temperature: 37°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfathiazole in water at 37°C is 87.9 mg/100 ml  
(3.44 \times 10^{-3} \text{ mol dm}^{-3}, \text{ compiler}).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

The earlier developed method was employed (1), whereby an excess of sulfathiazole, required to saturate medium, was placed in a flask contg 25 ml of water. The flask was shaken (2 strokes/s) at an amplitude of 3 cm, in a thermostatically controlled bath. One-ml sample was removed every 6 h (total equilibration time was 3-5 days) using a warmed Millipore filter syringe with a filter pore size of 0.45 \(\mu\) (Millipore HAWP 01300) and the filtrate was diluted with water and assayed spectrophotometrically.

**SOURCE AND PURITY OF MATERIALS:**

Sulfathiazole was of the Japanese Pharmacopeia grade.  
Distilled water was used.

**ESTIMATED ERROR:**

Soly: not specified  
Temp: ±0.05°C (authors)

**REFERENCES:**

1. Kaneniwa, N.; Watari, N.  
**COMPONENTS:**

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>FORMULA</th>
<th>CAS NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂</td>
<td>[72-14-0]</td>
<td></td>
</tr>
<tr>
<td>(2) Water; H₂O;</td>
<td>[7732-18-5]</td>
<td></td>
</tr>
</tbody>
</table>

**VARIABLES:**

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature</td>
<td>20°C</td>
</tr>
</tbody>
</table>

**EXPERIMENTAL VALUES:**

Solubility of sulfathiazole in water at 20°C is 40.9 mg/100 ml (1.60 x 10⁻³ mol dm⁻³, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

Fifty ml of a suspension contg 2.0 g of sulfathiazole was placed in a thermostat and stirred with a magnetic stirrer. The concn of the solute was monitored continuously after filtration through a G3 or G4 fritted-glass filters by means of a Knauer differential refractometer or a Shimadzu 100-02 UV spectrophotometer. The cuvets of the refractometer were thermostated. The variations of the refractive index or light absorption were recorded as a function of time by means of a Servogor 220 two-line recorder.

**SOURCE AND PURITY OF MATERIALS:**

Sulfathiazole: neither source nor purity was specified. Distilled water was used.

**ESTIMATED ERROR:**

Nothing specified

**REFERENCES:**
COMPONENTS: ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C$_9$H$_9$N$_3$O$_2$S$_2$; [72-14-0]
(2) Water; H$_2$O; [7732-18-5]

VARIABLES:
One temperature: 20°C

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in water at 20°C is 1 part in 3000 parts of water ($1.3 \times 10^{-3}$ mol kg$^{-1}$ water - compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Soly was detd by the Pharmacopeia Hungarica V method. The equilibration time was 2 days with occasional shaking (personal communication). The concn of the solute in the satd soln was detd spectrophotometrically at 282 nm using a Spektromom 195 spectrophotometer.

SOURCE AND PURITY OF MATERIALS:
The source and purity of sulfathiazole was not specified. Distilled water was used.

ESTIMATED ERROR:
Soly: not specified
Temp: ±2°C (personal communication).

REFERENCES:
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl; (sulfathiazole); C$_9$H$_{10}$N$_3$O$_2$S$_2$; [72-14-0]
2. Sodium hydroxide; NaOH; [1310-73-2]
3. Water; H$_2$O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**

**VARIABLES:**

<table>
<thead>
<tr>
<th>pH</th>
</tr>
</thead>
</table>

**PREPARED BY:**
R. Piekos

**EXPERIMENTAL VALUES:**

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility, mg per cent at 37°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td></td>
</tr>
<tr>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td>7.0</td>
<td></td>
</tr>
<tr>
<td>7.5</td>
<td></td>
</tr>
<tr>
<td>8.0</td>
<td></td>
</tr>
</tbody>
</table>

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
An excess of sulfathiazole was stirred in boiling water, the soln was cooled to 37°C, the temp being maintained thermostatically, and 0.1 N NaOH was added to increase the pH. The pH was measured by means of a glass electrode-calomel half-cell system, and was permitted to reach equilibrium before a reading was taken. The concn of sulfathiazole in soln was detd colorimetrically by withdrawing a sample through a filter-tip into a preheated micropipet.

**SOURCE AND PURITY OF MATERIALS:**
The source and purity of sulfathiazole was not specified.
Water was doubly distilled.

**ESTIMATED ERROR:**
Nothing specified

**REFERENCES:**
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
2. Sodium hydroxide; NaOH; [1310-73-2]
3. Water; H₂O; [7732-18-5]

**VARIABLES:**

Concentration of NaOH

**EXPERIMENTAL VALUES:**

<table>
<thead>
<tr>
<th>Concentration of NaOH soln</th>
<th>Volume of NaOH soln required to dissolve 1 g of sulfathiazole at 26°C</th>
<th>Solubility of sulfathiazole at 26°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>N cm³</td>
<td></td>
<td>mol dm⁻³ NaOH soln a</td>
</tr>
<tr>
<td>1/10 41.650</td>
<td>0.0940</td>
<td></td>
</tr>
<tr>
<td>1/4 16.650</td>
<td>0.2352</td>
<td></td>
</tr>
<tr>
<td>1/2 8.325</td>
<td>0.4705</td>
<td></td>
</tr>
<tr>
<td>1.0 4.175</td>
<td>0.9382</td>
<td></td>
</tr>
<tr>
<td>1.5 2.750</td>
<td>1.4243</td>
<td></td>
</tr>
<tr>
<td>1.75 2.425</td>
<td>1.6152</td>
<td></td>
</tr>
<tr>
<td>1.8 5.200</td>
<td>0.7530</td>
<td></td>
</tr>
<tr>
<td>1.9 7.200</td>
<td>0.5440</td>
<td></td>
</tr>
<tr>
<td>2.0 7.833</td>
<td>0.5000</td>
<td></td>
</tr>
<tr>
<td>2.5 46.830</td>
<td>0.0836</td>
<td></td>
</tr>
</tbody>
</table>

a calculated by compiler

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

Nothing specified

**SOURCE AND PURITY OF MATERIALS:**

Nothing specified. Distd water was used.

**ESTIMATED ERROR:**

Nothing specified

**REFERENCES:**
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
2. Sodium chloride; NaCl; [7647-14-5]
3. Water; H₂O; [7732-18-5]

**VARIABLES:**

One temperature: 18-19°C

**ORIGINAL MEASUREMENTS:**

Becher, R.; Leya, S. *Experientia* 1946, 2, 459-60.

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfathiazole in a 5% NaCl solution at room temperature (18-19°C) is 45 mg% (1.8 x 10⁻³ mol dm⁻³, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

After standing for more than two days the soln of sulfathiazole was filtered and sulfathiazole was assayed in the filtrate colorimetrically by the method of Druey and Oesterheld (1).

**SOURCE AND PURITY OF MATERIALS:**

Nothing specified

**ESTIMATED ERROR:**

Nothing specified

**REFERENCES:**

COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl; (sulfathiazole); C₉H₇N₃O₂S₂; [72-14-0]
(2) Sodium chloride, NaCl; [7647-14-5]
(3) Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Avico, U.; Cavazutii, G.; di Francesco, R.; Signoretti Ciranni, E.; Zuccaro, P.

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>g/100 g water</th>
<th>10³ mol kg⁻¹ water</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>0.627</td>
<td>2.456</td>
</tr>
<tr>
<td>35</td>
<td>1.010</td>
<td>3.956</td>
</tr>
<tr>
<td>40</td>
<td>1.214</td>
<td>4.755</td>
</tr>
</tbody>
</table>

a Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A soln of Na salt of sulfathiazole was added to a HCl soln contg stoichiometric quantity of the acid to neutralize the salt. The neutralization was carried out in a thermostat and the pH of the mixt was maintained close to that of a satd sulfathiazole soln. The procedure was repeated using various initial concns of the reagents to find the max concn of sulfathiazole at which no pptn occurred.

SOURCE AND PURITY OF MATERIALS:
Source and purity of sulfathiazole was not purified. The mp of crystalline sulfathiazole was 200-4°C. Purity of the water was not specified.

ESTIMATED ERROR:
Nothing specified

REFERENCES:
**COMPONENTS:**

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
(2) Potassium chloride; KCl; [7447-40-7]
(3) Water; H₂O; [7732-18-5]

**VARIABLES:**
- One temperature: 25°C

**EXPERIMENTAL VALUES:**

Solubility of sulfathiazole in a KCl solution (ionic strength 0.15 M) at 25°C is 0.0373 g/100 cm³ saturated solution (1.46 x 10⁻³ mol dm⁻³, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
A 10-30% excess of sulfathiazole was equilibrated in a sealed vial for 1-8 days. An aliquot of the supernatant was withdrawn with a hypodermic syringe, the liquid was weighed, and the sulfathiazole was detd in it spectrophotometrically at 283 nm using 0.1 M citrate buffer of pH 5 as the solvent.

**SOURCE AND PURITY OF MATERIALS:**
Sulfathiazole (source not specified) was recrystd from hot water. The source and purity of KCl was not specified. Distilled water was used.

**ESTIMATED ERROR:**
Soly: the average of the following soly values was given: 0.0372, 0.0373, 0.0384, and 0.0363 g/100 cm³ satd soln.
Temp: not specified.

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-N-thiazolyl- (sulfathiazole);
C9H9N3O2S2; [7Z-14-0]
(2) Phosphoric acid, disodium salt;
Na3HPO4; [7558-94-4]
(3) Water; H2O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Krüger-Thiemer, E.

VARIABLES:
One temperature: ca 20°C; one pH: 8.74

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in a 0.705 M (10%) Na2HPO4 solution of
pH 8.74, at room temperature (about 20°C), is 0.228 g% (8.93 x
10^-3 mol dm^-3 solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfathiazole (0.5 g) was dissolved in 10
cm^3 of the 0.705 M (10%) Na2HPO4 soln, shaken
for 2 h at room temp (about 20°C), and fil-
tered. A 1-cm^3 aliquot of the filtrate was
withdrawn, cooled, acidified with 1 cm^3 of
2 N HCl, and the sulfathiazole content was
detd colorimetrically by the method of
Marshall modified by Kimmig (1) using an
Autenrieth colorimeter. The pH was detd on
an ultraionograph using a glass electrode.

SOURCE AND PURITY OF MATERIALS:
Sulfathiazole was the product manufd by
Ciba under the name Cibazol.
The source and purity of the remaining
materials was not specified.

ESTIMATED ERROR:
Soly: precision ±5% (author)
Temp: not specified
pH ; ±0.05 pH unit (author)

REFERENCES:
1. Kimmig, J. Arch. Dermatol. 1938,
176, 722; Erg. Hyg. 1941, 24, 398.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C9H9N3O2S2; [72-14-0]
(2) Phosphoric acid, monopotassium salt; KH2PO4; [7778-77-0]
(3) Water; H2O; [7732-18-5]

VARIABLES:
One temperature: ca 20°C; one pH: 4.37

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in a 0.735 M (10%) KH2PO4 solution of pH 4.37, at room temperature (about 20°C), is 0.029 g%
(1.13 x 10^-3 mol dm^-3 solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfathiazole (0.5 g) was dissolved in 10 cm^3 of the 0.735 M (10%) KH2PO4 soln, shaken for 2 h at room temp (about 20°C), and filtered. A 1-cm^3 aliquot of the filtrate was withdrawn, cooled, acidified with 1 cm^3 of 2 N HCl, and the sulfathiazole content was detd colorimetrically by the method of Marshall modified by Kimmig (1) using an Autenrieth colorimeter. The pH was detd on an ultramionograph using a glass electrode.

SOURCE AND PURITY OF MATERIALS:
Sulfathiazole was the product manufd by Ciba under the name of Cibazol. The source and purity of the remaining materials was not specified.

ESTIMATED ERROR:
Soly: precision ±5% (author)
Temp: not specified
pH : ±0.05 pH unit (author)

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
(2) Calcium chloride; CaCl₂; [10043-52-4]
(3) Potassium chloride; KCl; [7447-40-7]
(4) Sodium chloride; NaCl; [7647-14-5]
(5) Water; H₂O; [7732-18-5]

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Solubility in bicarbonate-free Locke's solutiona</th>
<th>10³ mol dm⁻³ b</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>36</td>
<td>1.4</td>
</tr>
<tr>
<td>36</td>
<td>91</td>
<td>1.6</td>
</tr>
</tbody>
</table>

a The solution contained NaCl 9 g, KCl 0.2 g, CaCl₂ 0.2 g, water 1 liter, and had a pH of 6.8.

b Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfathiazole was shaken up with the bicarbonate-free Locke's soln for many hours in a tube which was corked to prevent loss of CO₂. The supernatant was filtered through a paper, dried in a hot room to prevent pptn, and sulfathiazole was detd by the method of Marshall and Litchfield (1).

SOURCE AND PURITY OF MATERIALS:
Nothing specified

ESTIMATED ERROR:
Soly: average of 3 detns has been given (authors).
Temp: not specified.

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
C9H9N3O2ZS; [7Z-14-0]
(2) Phosphoric acid, disodium salt;
Na2HPO4; [7558-94-4]
(3) Phosphoric acid, monopotassium salt;
K2HPO4; [7778-77-0]
(4) Water; H2O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Krüger-Thiemer, E.

PREPARED BY:
R. Piekos

VARIABLES:
Temperature, pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Composition of 1/15 M phosphate buffer solutions</th>
<th>pH</th>
<th>Solubility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Room temp (ca 20°C)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>g% 10^3 mol dm^{-3} solution</td>
</tr>
<tr>
<td>Na2HPO4</td>
<td>KH2PO4</td>
<td>% content</td>
</tr>
<tr>
<td>1.0</td>
<td>99.0</td>
<td>0.91</td>
</tr>
<tr>
<td>10.0</td>
<td>90.0</td>
<td>0.91</td>
</tr>
<tr>
<td>61.1</td>
<td>38.9</td>
<td>0.93</td>
</tr>
<tr>
<td>9.5</td>
<td>0.5</td>
<td>0.733b</td>
</tr>
<tr>
<td>94.7</td>
<td>5.3</td>
<td>0.95</td>
</tr>
</tbody>
</table>

a Calculated by compiler
b Molar content; 10% buffer solution

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfathiazole (0.5 g) was dissolved in 10 cm^3 of a buffer soln, shaken for 2 h at 20°C (or left for 48 h at 37°C), and filtered at respective temp. A 1 cm^3 aliquot of the filtrate was then withdrawn, cooled (dild for expts at 37°C), acidified with 1 cm^3 of 2 N HCl, and the sulfathiazole content was detd colorimetrically by the method of Marshall modified by Kimmig (1) using an Autenrieth colorimeter. The pH was detd on an ultrasonograph using a glass electrode.

SOURCE AND PURITY OF MATERIALS:
Sulfathiazole was the product manufd by Ciba under the name of Cibazol. The source and purity of the remaining reagents was not specified.

ESTIMATED ERROR:
Soly: precision ±5% (author)
Temp: not specified
pH: ±0.05 pH unit (author)

REFERENCES:
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C9H9N3O2S2; [72-14-0]
(2) Phosphoric acid, disodium salt; Na2HPO4; [7558-94-4]
(3) Phosphoric acid, monopotassium salt KH2PO4; [7778-77-0]
(4) Water; H2O; [7732-18-5]

VARIABLES:

<table>
<thead>
<tr>
<th>pH</th>
<th>mg%</th>
<th>10^3 mol dm^-3 a</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0</td>
<td>51</td>
<td>2.00</td>
</tr>
<tr>
<td>7.0</td>
<td>65</td>
<td>2.54</td>
</tr>
<tr>
<td>8.0</td>
<td>125</td>
<td>4.90</td>
</tr>
</tbody>
</table>

---

ORIGINAL MEASUREMENTS:

Pulver R.; Suter, R.

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in M/15 phosphate buffers (according to Sørensen) at 20°C

METHOD/APPARATUS/PROCEDURE:

Nothing specified

SOURCE AND PURITY OF MATERIALS:

Nothing specified

ESTIMATED ERROR:

Nothing specified

REFERENCES:
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole):
   C9H9N302S2; [72-14-0]

(2) Phosphoric acid, disodium salt:
   Na2HP04; [7558-94-4]

(3) Phosphoric acid, monopotassium salt:
   KHzP04; [7778-77-0]

(4) Water: H2O; [7732-18-5]

VARIABLES:

pH

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in phosphate buffer solution at 38°C.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An excess of sulfathiazole was suspended in buffer solns (prepd by dilg appropriate mixts
of Na2HP04 and KH2P04, 1 part to 10 parts of distd water), agitated and kept in a water
bath at 38°C for about 2 h. The solns were then filtered and analysis for total sulfa-
thiazole were made on the filtrates. Sulfathiazole was assayed colorimetrically after
coupling with di-Me-l-naphylamine using a Bausch and Lomb colorimeter fitted
with a No. 74 Wratten filter. Standards were made from a stock soln of sulfathiazole contg
200 mg/liter.

SOURCE AND PURITY OF MATERIALS:
Distd water was used.

The source and purity of the remaining reagents were not specified.

ESTIMATED ERROR:
Soly: the curve represents a composite of 3 sets of detns (authors).
Temp and pH: not specified.

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₇N₃O₂S₂; [72-14-0]
(2) Phosphoric acid, disodium salt; Na₂HPO₄; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH₂PO₄; [7778-77-0]
(4) Water; H₂O; [7732-18-5]

VARIABLES:

pH

EXPERIMENTAL VALUES:

The solubility at pH 6.1 is 104 mg/100 ml solvent (4.073 x 10⁻³ mol dm⁻³, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An excess of sulfathiazole in the phosphate buffer was shaken at 37°C for 24 h. The concn of the solute was detd by the Bratton and Marshall method (1) using a photoelec colorimeter.

SOURCE AND PURITY OF MATERIALS:
Neither source nor purity of the materials was specified.

ESTIMATED ERROR:
Soly: precision ±8 mg/100 ml (authors).
Temp and pH: not specified.

REFERENCES:
### COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
2. Phosphoric acid, disodium salt; Na₂HPO₄; [7558-94-4]
3. Phosphoric acid, monopotassium salt; KH₂PO₄; [7778-77-0]
4. Water; H₂O; [7732-18-5]

### EXPERIMENTAL VALUES:

The solubility at pH 6.1 is 104 mg/100 ml solvent (4.07 x 10⁻³ mol dm⁻³, compiler). This is the solubility value of sulfathiazole at 37°C.

### METHOD/APparatus/PROCEDURE:

An excess of sulfathiazole in the phosphate buffer was shaken at 37°C for 24 h. The concn of the solute was detd by the Bratton and Marshall method (1) using a photoelec colorimeter.

### AUXILIARY INFORMATION

### SOURCE AND PURITY OF MATERIALS:

Neither source nor purity of the materials was specified.

### ESTIMATED ERROR:

Soly: precision ±8 mg/100 ml (authors).
Temp and pH: not specified

### REFERENCES:

**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
2. Phosphoric acid, disodium salt; Na₂H₂P₂O₇; [7558-94-4]
3. Phosphoric acid, monopotassium salt; KH₂P₂O₇; [7778-77-0]
4. Water; H₂O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**

Langecker, H. 
*Arch. Exp. Path. Pharmacol.* 1948, 205, 291-301.

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

<table>
<thead>
<tr>
<th>pH of the 1/15 M phosphate buffer</th>
<th>Solubility at 37°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg%</td>
</tr>
<tr>
<td>4.9</td>
<td>108</td>
</tr>
<tr>
<td>5.9</td>
<td>94</td>
</tr>
<tr>
<td>6.9</td>
<td>204</td>
</tr>
<tr>
<td>7.5</td>
<td>356</td>
</tr>
</tbody>
</table>

* Calculated by compiler

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

An excess of sulfathiazole was added to the buffer soln and boiled for 1 h in a sealed ampul followed by keeping the ampul at 37°C. The concn of sulfathiazole was detd colorimetrically by the method of Bratton and Marshall (1) using a Havemann colorimeter (2), as well as by microanal detn of the solid residue.

**SOURCE AND PURITY OF MATERIALS:**

Source and purity of the materials was not specified.

**ESTIMATED ERROR:**

Nothing specified

**REFERENCES:**

   *J. Biol. Chem.* 1939, 128, 537.
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C$_9$H$_9$N$_3$O$_2$S$_2$; [72-14-0]
2. Phosphoric acid, disodium salt; Na$_2$HPO$_4$; [7558-94-4]
3. Phosphoric acid; monopotassium salt; KH$_2$PO$_4$; [7778-77-0]
4. Water; H$_2$O; [7732-18-5]

**VARIABLES:**

One temperature: 20°C; one pH: 7.3

**EXPERIMENTAL VALUES:**

Solubility of crystalline forms I and II of sulfathiazole in a 0.066 M phosphate buffer (according to Sørensen) of pH 7.3 at 20°C is 113.0 mg% (4.43 x 10$^{-3}$ mol dm$^{-3}$, compiler) and 62.8 mg% (2.46 x 10$^{-3}$ mol dm$^{-3}$, compiler), respectively.

**METHOD/APPARATUS/PROCEDURE:**

Sulfathiazole and the buffer soln were placed in a polyethylene vessel, agitated for 3 h, filtered, and the sulfonamide was assayed in the filtrate by uv spectrophotometry using water as a reference and diluent. The solid phase was examd thermomicroscopically for identity of the cryst form.

**SOURCE AND PURITY OF MATERIALS:**

A comm available form II of sulfathiazole was used. Form I was obtained by keeping the comm reagent at 170°C for 2 h. The source and purity of the remaining materials was not specified. Distilled water was used.

**ESTIMATED ERROR:**

Soly: not specified
pH : not specified
Temp: ±0.5°C (authors).

**REFERENCES:**

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); \( \text{C}_9\text{H}_9\text{N}_3\text{O}_2\text{S}_2; \) [72-14-0]

(2) Phosphoric acid, disodium salt; \( \text{Na}_2\text{HPO}_4; \) [7558-94-4]

(3) Phosphoric acid, monopotassium salt; \( \text{KH}_2\text{PO}_4; \) [7778-77-0]

(4) Water; \( \text{H}_2\text{O}; \) [7732-18-5]

VARIABLES:

One temperature: 20°C; one pH: 7.4

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in a M/15 Sörensen buffer solution (pH 7.4) at 20°C is 75 mg% \( (2.9 \times 10^{-3} \text{ mol dm}^{-3} \text{ solution, compiler}) \).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sörensen buffer solns of pH varying between 7 and 8 were prepd, satd with sulfathiazole at 20°C, their pH was measured at equilibri-um, and the sulfathiazole was assayed colori-metrically. The measured pH values were then plotted against concn, and the soly at pH 7.4 was detd by interpolation (personal communication).

SOURCE AND PURITY OF MATERIALS:
Nothing specified

ESTIMATED ERROR:
Nothing specified

REFERENCES:

ORIGINAL MEASUREMENTS:

Riess, W.

PREPARED BY:

R. Piekos
COMPONENTS: ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
C₉H₉N₃O₂S₂; [72-14-0]
(2) Phosphoric acid, disodium salt;
Na₂H₂PO₄; [7558-94-4]
(3) Phosphoric acid, monopotassium salt;
KH₂PO₄; [7778-77-0]
(4) Water; H₂O; [7732-18-5]


PREPARED BY: R. Piekos

EXPERIMENTAL VALUES:
Solubility of sulfathiazole in a phosphate buffer solution of pH 7.4
(μ = 0.17) at 30°C is 4.38 mmol/L (1.12 g dm⁻³, compiler).

METHOD/APPARATUS/PROCEDURE:
Sulfathiazole (0.5 g) was placed in an L-shaped tube together with 20 ml of the
buffer soln. The mixt was shaken in a thermostat until equilibrium was attained.
The sulfathiazole content was assayed in the supernatant spectrophotometrically at 545 nm
on a Beckman DU spectrophotometer. The results were taken from a calibration graph.

SOURCE AND PURITY OF MATERIALS:
Nothing specified

ESTIMATED ERROR:
Soly and pH: not specified
Temp: ±1°C (authors)

REFERENCES:
## COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); [C₉H₉N₃O₂S₂] [72-14-0]
2. Phosphoric acid, disodium salt; [Na₂HPO₄] [7558-94-4]
3. Phosphoric acid, monopotassium salt; [KH₂PO₄] [1778-77-0]
4. Water; [H₂O] [7732-18-5]

## ORIGINAL MEASUREMENTS:


## PREPARED BY:

R. Piekos

## VARIABLES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility at 25°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg/l</td>
</tr>
<tr>
<td>5.5</td>
<td>4565</td>
</tr>
<tr>
<td>7.5</td>
<td>13086</td>
</tr>
</tbody>
</table>

a Calculated by compiler

## EXPERIMENTAL VALUES:

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:** Satd solns of sulfathiazole were prepd in phosphate buffers of pH 5.5 and 7.5 at room temp (25°C). The concn of the solute was measured by means of a Spectra Physics 3500B high-performance liquid chromatograph equipped with a column oven (Model 748) and a Pye-Unicam LC-UV spectrophotometric detector. The detector was connected to a 1-mV recorder. A stainless steel column (10 cm x 4.6 mm id.) was packed with Lichrosorb RPS, 5 μm, obtained from Chrompack. An injection loop of 100 μl was used. The oven temp was 40°C. Detection of sulfathiazole was performed at 260 nm.

**SOURCE AND PURITY OF MATERIALS:** The source and purity of the materials was not specified.

**ESTIMATED ERROR:** The detection limit of the solute by HPLC was 0.5 mg/l (authors). The error in temperature and pH was not specified.

**REFERENCES:**
COMPONENTS:

(1) Benzensulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C\textsubscript{9}H\textsubscript{9}N\textsubscript{3}O\textsubscript{2}S\textsubscript{2}; [72-14-0]

(2) Hydrochloric acid; HCl; [7647-01-0]

(3) 1,2,3-Propanetricarboxylic acid, 2-hydroxy-, disodium salt; C\textsubscript{6}H\textsubscript{6}Na\textsubscript{2}O\textsubscript{7}; [144-33-2]

(4) Water; H\textsubscript{2}O; [7732-18-5]

VARIABLES:

One temperature: 20°C; one pH: 3.8

EXPERIMENTAL VALUES:

Solubility of crystalline forms I and II of sulfathiazole in a 0.066 M citrate buffer (according to Sørensen) of pH 3.8 at 20°C is 63.4 mg% (2.48 x 10^{-3} \text{ mol dm}^{-3}, compiler) and 36.1 mg% (1.41 x 10^{-3} \text{ mol dm}^{-3}, compiler), respectively.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfathiazole and the buffer soln were placed in a polyethylene vessel, agitated for 3 h, filtered, and the sulfonamide was assayed in the filtrate by uv spectrophotometry using water as a reference and diluent. The solid phase was examd thermomicroscopically for identity of the crys form.

SOURCE AND PURITY OF MATERIALS:

A comm available form II of sulfathiazole was used. Form I was obtained by keeping the comm reagent at 170°C for 2 h. The source and purity of the remaining materials was not specified. Distilled water was used.

ESTIMATED ERROR:

Soly: not specified
pH: not specified
Temp: ±0.5°C (authors)

REFERENCES:
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); 
   C$_9$H$_9$N$_3$O$_2$S$_2$; [72-14-0]

(2) Phosphoric acid, disodium salt; 
    Na$_2$HPO$_4$; [7558-94-4]

(3) 1,2,3-Propanetricarboxylic acid, 
    2-hydroxy- (citric acid); C$_6$H$_8$O$_7$; [77-92-9]

(4) Water; H$_2$O; [7732-18-5]

VARIABLES:

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH of McIlvaine's buffer solution</th>
<th>Solubility at 20°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>g/100 ml</td>
</tr>
<tr>
<td>4.1</td>
<td>0.043</td>
</tr>
<tr>
<td>5.1</td>
<td>0.045</td>
</tr>
<tr>
<td>5.9</td>
<td>0.049</td>
</tr>
<tr>
<td>6.5</td>
<td>0.059</td>
</tr>
<tr>
<td>6.9</td>
<td>0.081</td>
</tr>
<tr>
<td>7.5</td>
<td>0.153</td>
</tr>
</tbody>
</table>

* Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An earlier described method was employed (1) whereby a small excess of sulfathiazole was equilibrated with 20 ml of the McIlvaine's buffer soln for 8 h in a 50-ml test tube. Aliquots were withdrawn through a filter and sulfathiazole was assayed bromatometrically.

SOURCE AND PURITY OF MATERIALS:
Sulfathiazole: not specified.
McIlvaine's buffer solns were prep'd from a 0.1 M citric acid soln. Source and purity of the buffer components were not specified.

ESTIMATED ERROR:
Soly: not specified
Temp: ±0.1°C (authors)

REFERENCES:
1. Gusyakov, V. P.; Likhol'ot, N. M. 
   Farm. Zh. (Kiev) 1960, 16(8), 21.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
(2) Ethanesulfonic acid, 2-[[3α,5β,7α, 12α]-3,7,12-trihydroxy-24-oxocholan-24-ylamino]-, monosodium salt (Na taurocholate); C₂₆H₄₅NΟ₇S·Na; [145-42-6]
(3) Phosphoric acid, disodium salt; Na₂H₂P0₄; [7558-94-4]
(4) Phosphoric acid, monosodium salt; NaH₂PO₄; [7558-80-7]
(5) Water; H₂O; [7732-18-5]

VARIABLES:
Concentration of Na taurocholate; pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Concentration of Na taurocholate</th>
<th>Solubility of sulfathiazole at 25°C (μg/ml solution)</th>
</tr>
</thead>
<tbody>
<tr>
<td>mM/1 solution</td>
<td>pH 6.3</td>
</tr>
<tr>
<td>2.0</td>
<td>3.65</td>
</tr>
<tr>
<td>4.0</td>
<td>3.28</td>
</tr>
<tr>
<td>6.0</td>
<td>3.42</td>
</tr>
<tr>
<td>8.0</td>
<td>3.60</td>
</tr>
<tr>
<td>12.0</td>
<td>3.70</td>
</tr>
<tr>
<td>16.0</td>
<td>3.89</td>
</tr>
<tr>
<td>20.0</td>
<td>4.21</td>
</tr>
<tr>
<td>pH 7.2</td>
<td>6.41</td>
</tr>
<tr>
<td></td>
<td>6.27</td>
</tr>
<tr>
<td></td>
<td>5.77</td>
</tr>
<tr>
<td></td>
<td>6.05</td>
</tr>
<tr>
<td></td>
<td>6.18</td>
</tr>
<tr>
<td></td>
<td>6.73</td>
</tr>
<tr>
<td></td>
<td>7.02</td>
</tr>
</tbody>
</table>

a Numerical values given by the first author in personal communication.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The solubility of sulfathiazole was determined by the method of Hofmann (1). In a series of 15-ml glass cylinders with ground-in stoppers, 75 mg of sulfathiazole was suspended in 15 ml of phosphate buffer solutions of increasing Na taurocholate concentration. The suspensions were agitated for 20 h at 25°C and filtered. The quantity of sulfathiazole dissolved was determined by measuring surface tension by means of a Dognon-Abribat (Prolobo) tensiometer and spectrophotometrically by using a Perkin Elmer EPS-35 spectrophotometer.

SOURCE AND PURITY OF MATERIALS:
Neither source nor purity of the materials was specified.
The phosphate buffer was 0.3 M in respect of the Na⁺ ion concentration.

ESTIMATED ERROR:
Solubility: precision ±2% (authors)
PH: precision ±0.02 pH unit (authors)
Temp: ±0.5°C (authors)

REFERENCES:
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₇H₆N₃O₃S₂; [72-14-0]

(2) Ethanesulfonic acid, 2-[[[(3α, 5β, 7α, 12α)-3,7,12-trihydroxy-24-oxocholan-24-yl]amino]acetyl]amino]-, sodium salt (Na tauroglycocholate); C₂₈H₄₈N₂O₈S·Na [11006-55-6]

(3) Phosphoric acid, disodium salt; Na₂H₂PO₄; [7558-94-4]

(4) Phosphoric acid, monosodium salt; NaH₂PO₄; [7558-80-7]

(5) Water; H₂O; [7732-18-5]

VARIABLES:

Concentration of Na tauroglycocholate; pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Concentration of Na tauroglycocholate mM/l solution</th>
<th>Solubility of sulfathiazole at 25°C µM/ml solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH 6.3</td>
<td>pH 7.2</td>
</tr>
<tr>
<td>2.0</td>
<td>3.80</td>
</tr>
<tr>
<td>4.0</td>
<td>3.52</td>
</tr>
<tr>
<td>6.0</td>
<td>3.62</td>
</tr>
<tr>
<td>8.0</td>
<td>3.70</td>
</tr>
<tr>
<td>12.0</td>
<td>3.90</td>
</tr>
<tr>
<td>16.0</td>
<td>4.08</td>
</tr>
<tr>
<td>20.0</td>
<td>4.17</td>
</tr>
</tbody>
</table>

a Numerical values given by the first author in personal communication.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The solubility of sulfathiazole was determined by the Hofmann method (1). In a series of 15-ml glass cylinders with ground-in stoppers, 75 mg of sulfathiazole was placed in 15 ml of phosphate buffer solutions of increasing Na tauroglycocholate concentration. The suspensions were agitated for 20 h at 25°C and filtered. The quantity of sulfathiazole dissolved was determined by measuring surface tension by means of a Dognon-Abribat (Prolabo) tensiometer and spectrophotometrically on a Perkin Elmer EPS-35 spectrophotometer.

SOURCE AND PURITY OF MATERIALS:
Neither source nor purity of the materials was specified.
The phosphate buffer was 0.3 M in respect of the Na⁺ ion concentration.

ESTIMATED ERROR:
Soly: precision ±2% (authors)
 pH : precision ±0.02 pH unit (authors)
 Temp: ±0.5°C (authors)

REFERENCES:
**COMPONENTS:**

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₈H₉N₃O₇S₂; [72-14-0]

(2) Pectinic acid, sodium salt; (C₁₃H₁₇Na₀₁₂)ₙ; [9049-37-0]

(3) Water; H₂O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**


**VARIABLES:**

One temperature: 18-19°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfathiazole in a 2.6% neutral sodium pectinate solution ( [sodium pectinate] = 6.7 x 10⁻² mol kg⁻¹ (n = 1), compiler ) at room temperature (18 - 19°C) is 75 mg% (2.9 x 10⁻³ mol dm⁻³, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

The soln was allowed to stand for more than 2 days at room temp. The soln was then filtered, and sulfathiazole assayed in the filtrate colorimetrically by the method of Druey and Oesterheld (1).

**SOURCE AND PURITY OF MATERIALS:**

Nothing specified.

**ESTIMATED ERROR:**

Nothing specified.

**REFERENCES:**

<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]</td>
<td>Dubois, S.; Tawashi, R.</td>
</tr>
<tr>
<td>(2) Cholan-24-oic acid, 3,7,12-trihydroxy-, (3α, 5β, 7α, 12α)-, monosodium salt (Na cholate); C₂₄H₃₉NaO₅; [361-09-1]</td>
<td>Pharm. Acta Helv. 1975, 50, 184-7.</td>
</tr>
<tr>
<td>(3) Water; H₂O; [7732-18-5]</td>
<td>PREPARED BY:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>R. Piekos</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 37°C</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
<th></th>
</tr>
</thead>
</table>

Solubility of sulfathiazole in a 0.04 mol dm⁻³ Na cholate solution at 37°C is 15.60 x 10⁻⁴ g/ml (6.110 x 10⁻³ mol dm⁻³, compiler).

<table>
<thead>
<tr>
<th>AUXILIARY INFORMATION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>METHOD/APPARATUS/PROCEDURE:</td>
<td></td>
</tr>
<tr>
<td>Samples were filtered through a Millipore filter 0.45 µm and the amount of dissolved sulfathiazole was detd spectrophotometrically at 280 nm.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOURCE AND PURITY OF MATERIALS:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>USP grade sulfathiazole was used without further treatment. Na cholate was reagent grade. Distilled water was used.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESTIMATED ERROR:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing specified</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REFERENCES:</th>
<th></th>
</tr>
</thead>
</table>
### COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C$_9$H$_9$N$_3$O$_2$S$_2$; [72-14-0]
2. Cholan-24-oic acid, 3,7,12-trihydroxy-, (3α, 5β, 7α, 12α)-, monosodium salt (Na cholate); C$_{24}$H$_{39}$NaO$_5$; [361-09-1]
3. Ext. D. and C. Blue No.1; C$_{16}$H$_{18}$N$_3$S'C$_1$; [61-73-4]
4. Water; H$_2$O; [7732-18-5]

### VARIABLES:

One temperature: 37°C

### EXPERIMENTAL VALUES:

Solubility of sulfathiazole in a 0.04 mol dm$^{-3}$ Na cholate solution containing 50 μg/ml of Ext. D. and C. Blue No. 1 at 37°C is

14.90 x 10$^{-4}$ g/ml (5.84 x 10$^{-3}$ mol dm$^{-3}$, compiler).

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**

Samples were filtered through a Millipore filter 0.45 μm and the amount of dissolved sulfathiazole was detd spectrophotometrically at 280 nm.

**SOURCE AND PURITY OF MATERIALS:**

USP grade sulfathiazole, reagent grade Na cholate, certified Ext. D. and C. Blue No. 1 and distd water were used.

**ESTIMATED ERROR:**

Nothing specified

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₇N₃O₇S₂; [72-14-0]
(2) Cholan-24-oic acid, 3,7,12-trihydroxy-, (3α, 5β, 7α, 12α)-, monosodium salt (Na cholate); C₂₄H₃₉NaO₅; [361-09-1]
(3) F.D. and C. Violet No.1; C₃₉H₄₁N₃O₆S₂·Na; [1694-09-3]
(4) Water; H₂O; [7732-18-5]

VARIABLES:
One temperature: 37°C

EXPERIMENTAL VALUES:
Solubility of sulfathiazole in a 0.04 mol dm⁻³ Na cholate solution containing 50 µg/ml of F.D. and C. Violet No. 1 at 37°C is 14.50 x 10⁻⁴ g/ml (5.68 x 10⁻³ mol dm⁻³, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Samples were filtered through a Millipore filter 0.45 µm and the amount of dissolved sulfathiazole was detd spectrophotometrically at 280 nm.

SOURCE AND PURITY OF MATERIALS:
USP grade sulfathiazole, reagent grade Na cholate, certified F.D. and C. Violet No. 1 and distd water were used.

ESTIMATED ERROR:
Nothing specified

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
C₉H₇N₃O₂S₂; [72-14-0]
(2) Ethanol; C₂H₆O; [64-17-5]
(3) Water; H₂O; [7732-18-5]

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Form I g/1000 g solvent mol kg⁻¹ a</th>
<th>Form II g/1000 g solvent mol kg⁻¹ a</th>
</tr>
</thead>
<tbody>
<tr>
<td>59.1</td>
<td>31.50</td>
<td>0.1234</td>
</tr>
<tr>
<td>48.8</td>
<td>19.80</td>
<td>0.0775</td>
</tr>
<tr>
<td>39.4</td>
<td>14.00</td>
<td>0.0548</td>
</tr>
<tr>
<td>29.6</td>
<td>9.93</td>
<td>0.0389</td>
</tr>
<tr>
<td>24.1</td>
<td>8.15</td>
<td>0.0319</td>
</tr>
<tr>
<td>20.4</td>
<td>7.10</td>
<td>0.0278</td>
</tr>
<tr>
<td>14.5</td>
<td>5.70</td>
<td>0.0223</td>
</tr>
</tbody>
</table>

a Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A large excess of form I powder was added to about 500 ml of 95% EtOH in a beaker and held at a desired temp with stirring until equilibrium was obtained. Stirring was stopped, and samples were pipetted through a glass wool to remove suspended particles. The samples were weighed and quant dild with 95% EtOH for spectrophotometric assay at 288 nm. Solubilities of form II were calcd from the dissoln rate date.

SOURCE AND PURITY OF MATERIALS:
A U.S.P. sulfathiazole was used. Form I, mp 174-5°C, was obtained by slow recrystn from warm EtOH. Form II was obtained by heating form I to 180°C. The source and purity of the materials was not specified.

ESTIMATED ERROR:
Nothing specified

REFERENCES:

ORIGINAL MEASUREMENTS:
Milosovich, G.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₇N₃O₂S₂; [72-14-0]
(2) Ethanol; C₂H₆O; [64-17-5]
(3) Water; H₂O; [7732-18-5]

VARIABLES:
Concentration of ethanol

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Concentration of ethanol</th>
<th>Solubility at 20°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mole %</td>
</tr>
<tr>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>10</td>
<td>22.14</td>
</tr>
<tr>
<td>20</td>
<td>39.01</td>
</tr>
<tr>
<td>30</td>
<td>52.31</td>
</tr>
<tr>
<td>40</td>
<td>63.04</td>
</tr>
<tr>
<td>50</td>
<td>71.90</td>
</tr>
<tr>
<td>60</td>
<td>79.33</td>
</tr>
<tr>
<td>70</td>
<td>85.65</td>
</tr>
<tr>
<td>80</td>
<td>91.10</td>
</tr>
<tr>
<td>90</td>
<td>95.83</td>
</tr>
</tbody>
</table>

a Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfathiazole was equilibrated with the solvent in a water thermostat at 20±0.1°C. The concn of sulfathiazole was detd by alkalimetric titration.

SOURCE AND PURITY OF MATERIALS:
Purity of sulfathiazole conformed to the requirements of the State Pharmacopeia IX. The EtOH - water mixts were prepd from abs EtOH (purity and source not specified) and distd water.

ESTIMATED ERROR:
Soly: not specified
Temp: ±0.1°C (author).

REFERENCES:
Shkadova, A. I. 
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₈N₃O₂S₂; [72-14-0]
(2) Ethanol; C₂H₆O; [64-17-5]
(3) Water; H₂O; [7732-18-5]

VARIABLES:
Concentration of ethanol

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Vol/vol % ethanol in water</th>
<th>Solubility at 30°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>g/100 g</td>
</tr>
<tr>
<td>50</td>
<td>1.30</td>
</tr>
<tr>
<td>95</td>
<td>1.06</td>
</tr>
</tbody>
</table>

a Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An excess of the amount of the recryst sulfathiazole needed to produce a satd soln was placed in a volumetric flask with the solvent and agitated in a water bath at 30°C. Duplicate samples were withdrawn at 12-24-h intervals, filtered through a 0.45-μM Millipore filter, and analyzed spectrophotometrically.

SOURCE AND PURITY OF MATERIALS:
Sulfathiazole (source not specified) was purified by crystallization.
The source and purity of the remaining materials were not specified.

ESTIMATED ERROR:
Nothing specified

REFERENCES:

ORIGTNAL MEASUREMENTS:
Mehta, S. C.; Bernardo, P. D.
Higuchi, W. I.; Simonelli, A. P.

PREPARED BY:
R. Piekos
### COMPONENTS:

<table>
<thead>
<tr>
<th>No.</th>
<th>Component</th>
<th>CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Benzenesulfonamide, 4-amino-N-2-thiazolyl-H</td>
<td>72-14-0</td>
</tr>
<tr>
<td>2</td>
<td>Ethanol</td>
<td>64-17-5</td>
</tr>
<tr>
<td>3</td>
<td>1,2,3-Propanetriol</td>
<td>56-81-5</td>
</tr>
<tr>
<td>4</td>
<td>Water</td>
<td>7732-18-5</td>
</tr>
</tbody>
</table>

### VARIABLES:

One temperature: 26-28°C

### EXPERIMENTAL VALUES:

Solubility of sulfathiazole in a mixture of 1,2,3-propanetriol and 95°C ethanol (2:1 by wt) at 26-28°C is 2.08% (8.32 \times 10^{-2} \text{ mol kg}^{-1}, compiler).

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**

The sulfathiazole content was detd by diazotization of the amine group in a cold acidified 0.1N KNO₂ soln. An excess of KNO₂ was detected by using iodinated starch.

**SOURCE AND PURITY OF MATERIALS:**

Nothing specified

**ESTIMATED ERROR:**

Nothing specified

**REFERENCES:**

### COMPONENTS:
1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₇N₃O₂S₂; [72-14-0]
2. Ethanol; C₂H₆O; [64-17-5]
3. 1,2,3-Propanetriol; C₃H₈O₃; [56-81-5]
4. Urea; CH₄N₂O; [57-13-6]
5. Water; H₂O; [7732-18-5]

### VARIABLES:
One temperature: 26-28°C

### EXPERIMENTAL VALUES:

Solubility of sulfathiazole at 26-28°C in a saturated solution of urea in a mixture of 1,2,3-propanetriol and 95° ethanol (2:1 by wt), containing 54.5 g of urea per 100 g of the mixture, is 2.82% (0.114 mol kg⁻¹ solvent, compiler).

### METHOD/APPARATUS/PROCEDURE:
The sulfathiazole content was detd by diazotization of the amine group in a cold acidified 0.1N KNO₂ soln. An excess of KNO₂ was detected by using iodinated starch.

### SOURCE AND PURITY OF MATERIALS:
Nothing specified

### ESTIMATED ERROR:
Nothing specified

### REFERENCES:

### PREPARED BY:
R. Piekos
COMPONENTS:
(1) Benzenesulphonamide, 4-amino-N-2-thiazolyl-(sulfathiazole); C₉H₇N₃O₂S₂; [72-14-0]
(2) Urea; CH₂NO; [57-13-6]
(3) Water; H₂O; [7732-18-5]

VARIABLES:
Concentration of urea

EXPERIMENTAL VALUES:

Solubility in a 10 percent urea solution at 37°C is 133.0 mg per 100 cm³ (6.208 x 10⁻³ mol dm⁻³, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Urea solns of varying concns from 0.1 to 10% were incubated at 37°C with an excess of sulfathiazole, shaken at intervals, and filtered through two thicknesses of Whatman No. 42 filter paper. After appropriate diln the free sulfonamide was detd by the method of Bratton and Marshall (1) using the Evelyn colorimeter and a No. 540 filter.

SOURCE AND PURITY OF MATERIALS:
Nothing specified

ESTIMATED ERROR:
Nothing specified.

REFERENCES:

ORIGINAL MEASUREMENTS:
Sobin, S. S.
<table>
<thead>
<tr>
<th>COMPONENTS</th>
<th>ORIGINAL MEASUREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₇N₃O₂S₂; [72-14-0]</td>
<td>Weinstein, L.; McDonald, A. Science 1945, 101, 44-5.</td>
</tr>
<tr>
<td>(2) Carbamic acid, ethyl ester (urethane); C₃H₇NO₂; [51-79-6]</td>
<td></td>
</tr>
<tr>
<td>(3) Water; H₂O; [7732-18-5]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>PREPARED BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 20°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES</th>
</tr>
</thead>
</table>

Solubility of sulfathiazole in a 10% aqueous urethane solution at 20°C is 200 mg/100 cm³ urethane solution (7.83 x 10⁻³ mol dm⁻³, compiler).

<table>
<thead>
<tr>
<th>AUXILIARY INFORMATION</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>METHOD/APPARATUS/PROCEDURE</th>
<th>SOURCE AND PURITY OF MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing specified</td>
<td>Nothing specified</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESTIMATED ERROR</th>
<th>REFERENCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing specified</td>
<td></td>
</tr>
</tbody>
</table>
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-2-thiazoly1- (sulfathiazole); C_{9}H_{9}N_{3}O_{2}S_{2}; [72-14-0]
2. 1H-Purine-2,6-dione, 3,7-dihydro-1,3,7-trimethyl- (caffeine); C_{8}H_{10}N_{4}O_{2}; [58-08-2]
3. Water; H_{2}O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**

Higuchi, T.; Lach, J. L.


**VARIABLES:**

- Concentration of caffeine

**EXPERIMENTAL VALUES:**

<table>
<thead>
<tr>
<th>Caffeine</th>
<th>Sulfathiazole</th>
</tr>
</thead>
<tbody>
<tr>
<td>10^2 mol dm^{-3}</td>
<td>10^{-3} mol dm^{-3} g dm^{-3}</td>
</tr>
<tr>
<td>0.000</td>
<td>2.27</td>
</tr>
<tr>
<td>1.419</td>
<td>2.66</td>
</tr>
<tr>
<td>1.514</td>
<td>2.63</td>
</tr>
<tr>
<td>1.674</td>
<td>2.74</td>
</tr>
<tr>
<td>3.457</td>
<td>3.21</td>
</tr>
<tr>
<td>3.922</td>
<td>3.35</td>
</tr>
<tr>
<td>3.944</td>
<td>3.27</td>
</tr>
<tr>
<td>4.573</td>
<td>3.47</td>
</tr>
<tr>
<td>5.468</td>
<td>3.68</td>
</tr>
<tr>
<td>6.375</td>
<td>3.92</td>
</tr>
<tr>
<td>7.951</td>
<td>4.27</td>
</tr>
<tr>
<td>7.956</td>
<td>4.30</td>
</tr>
<tr>
<td>9.017</td>
<td>4.59</td>
</tr>
<tr>
<td>10.448</td>
<td>4.73</td>
</tr>
</tbody>
</table>

*Calculated by compiler

**METHOD/APPARATUS/PROCEDURE:**

Sulfathiazole (75 mg) was placed in 125-ml glass-stoppered bottles together with varying but accurately weighed amts of caffeine and 50-ml portions of water. The bottles were placed in a mech shaker in a const temp bath and equilibrated for 8 h at 30°C. Aliquots of the supernatant liquid were analyzed for the sulfonamide by the method of Bratton and Marshall (1).

**SOURCE AND PURITY OF MATERIALS:**

Recrystd sulfathiazole (U.S.P.), mp 201-20°C and recrystd caffeine (U.S.P.), mp 235-7°C were used. The water used was distilled.

**REFERENCES:**


   *J. Biol. Chem.* 1939, 128, 537.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₇N₃O₁₂S₂; [72-14-0]
(2) 1H-Purine-2,6-dione, 3,7-dihydro-1,3,7-trimethyl- (caffeine); C₈H₁₀N₄O₂; [58-08-2]
(3) Water; H₂O; [7732-18-5]

VARIABLES:
Concentration of caffeine

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Concentration of caffeine (g/100 ml)</th>
<th>Solubility of sulfathiazole at 37°C (γ/ml)</th>
<th>10³ mol dm⁻³</th>
<th>a</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.50</td>
<td>500</td>
<td>1.96</td>
<td></td>
</tr>
<tr>
<td>0.75</td>
<td>530</td>
<td>2.08</td>
<td></td>
</tr>
<tr>
<td>1.00</td>
<td>650</td>
<td>2.50</td>
<td></td>
</tr>
</tbody>
</table>

a Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A suspension of sulfathiazole in caffeine soln was kept for 5 h at 37°C and 1 h at room temp before filtration. Soly was detd by the Westfall's method (1) based on diazotization of the sulfonamide, coupling with Na 2-naphthol-3,6-disulphonate and comparing the color with that of a std soln in a Klett colorimeter.

SOURCE AND PURITY OF MATERIALS:
Sulfathiazole: not specified
Anhydrous caffeine was a good commercial product (source not specified).
Distilled water was used.

ESTIMATED ERROR:
Nothing specified

REFERENCES:
### COMPONENTS:

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); ( \text{C}_9\text{H}_9\text{N}_3\text{O}_2\text{S}_2 ); [72-14-0]</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2-Pyrrolidinone, 1-ethenyl-, polymers (PVP); ( (\text{C}_6\text{H}_9\text{N}_2\text{O})_x ); [9003-39-8]</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Water; ( \text{H}_2\text{O} ); [7732-18-5]</td>
<td></td>
</tr>
</tbody>
</table>

### ORIGINAL MEASUREMENTS:

Rupprecht, H.; Ziller, K. H. 

### VARIABLES:

- One temperature: 20°C

### EXPERIMENTAL VALUES:

Solubility of sulfathiazole in a suspension containing 2.0 mg PVP/100 ml at 20°C is 37.2 mg/100 ml (1.46 \( \times 10^{-3} \) mol dm\(^{-3} \), compiler).

### METHOD/APPARATUS/PROCEDURE:

To 50 ml of a suspension of 2.0 g of sulfathiazole, 1.0 mg of PVP was added, the mixt was placed in a thermostat and stirred with a magnetic stirrer. The concn of the solute was monitored continuously after filtration through a G3 or G4 fritted-glass filters by means of a Knauer differential refractometer or a Shimadzu 100-02 UV spectrophotometer. The cuvets of the refractometer were thermostated. Variations of the refractive index or light absorption were recorded as a function of time with a Servogor 220 two-line recorder.

### SOURCE AND PURITY OF MATERIALS:

- Sulfathiazole: neither source nor purity was specified.
- PVP K30 was from BASF, Ludwigshafen.
- Its purity was not specified.
- Distilled water was used.

### ESTIMATED ERROR:

Nothing specified

### REFERENCES:
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAl MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl; (sulfathiazole); C₉H₇N₃O₂S₂; [72-14-0]</td>
<td>Becher, R.; Leya, S. <em>Experientia</em> 1946, 2, 459-60.</td>
</tr>
<tr>
<td>(2) D-Glucose; C₆H₁₂O₆; [50-99-7]</td>
<td></td>
</tr>
<tr>
<td>(3) Water; H₂O; [77-32-18-5]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 18-19°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility of sulfathiazole in a 10% D-glucose solution at room temperature (18-19°C) is 57 mg% (2.2 x 10⁻³ mol dm⁻³, compiler).</td>
<td></td>
</tr>
</tbody>
</table>

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
After standing for more than two days the soln of sulfathiazole was filtered and the sulfonamide was assayed in the filtrate colorimetrically by the method of Druey and Oesterheld (1).

**SOURCE AND PURITY OF MATERIALS:**
Nothing specified

**ESTIMATED ERROR:**
Nothing specified

**REFERENCES:**
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]</td>
<td>Becher, R.; Leya, S., <em>Experientia</em> 1946, 2, 459-60.</td>
</tr>
<tr>
<td>(2) Pectin; (C₁₃H₁₈O₁₂)ₙ; [9000-69-5]</td>
<td></td>
</tr>
<tr>
<td>(3) Water; H₂O; [7732-18-5]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 18-19°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

**EXPERIMENTAL VALUES:**

Solubility of sulfathiazole in a 2.5% pectin solution ([pectin] = 6.8 x 10⁻² mol kg⁻¹, compiler), of pH about 2.6, at room temperature (18-19°C) is 86 mg% (3.4 x 10⁻³ mol dm⁻³, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
The solution was allowed to stand for more than 2 days at room temp. The solution was filtered, and sulfathiazole assayed colorimetrically in the filtrate by the method of Druey and Oesterheld (1).

**SOURCE AND PURITY OF MATERIALS:**
A high quality apple pectin was used: the rel viscosity of a 0.5% soln was 6.2, and for neutralization of 1 g of the pectin, 1.67 cm³ of a 1 mol dm⁻³ NaOH soln was used. The source and purity of sulfathiazole and water were not specified.

**ESTIMATED ERROR:**
Nothing specified

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
(2) Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (PEG 400); (C₂H₄O)nH₂O; [25322-68-3] 400
(3) Water; H₂O; [7232-18-5]

ORIGINAL MEASUREMENTS:

VARIABLES: PREPARED BY:
Concentration of PEG 400 R. Piekos

EXPERIMENTAL VALUES:

AUXILIARY INFORMATION
METHOD/APPARATUS/PROCEDURE:
An earlier described method was employed (1) whereby a 100-ml conical flask contg a PEG 400 soln was placed in a drying cabinet at 35°C and an excess of sulfathiazole was added under stirring for 1 h. After 12 h the soln was filtered or decanted and the solute was assayed in the filtrate spectrophotometrically using a Unicam SP 500 spectrophotometer and 1-ml quartz cuvets. Results were taken from a calibration graph.

SOURCE AND PURITY OF MATERIALS:
Neither source nor purity of sulfathiazole and water were specified.
PEG 400 was a product of Farbwerke Hoechst (purity not specified).

ESTIMATED ERROR:
Nothing specified

REFERENCES:
### COMPONENTS:
1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
2. Poly(oxy-1,2-ethanediyl), α-hydroxy- (PEG 4000); (C₂H₄O)nH₂O; [25322-68-3]
3. Water; H₂O; [7732-18-5]

### VARIABLES:
Concentration of PEG 4000

### EXPERIMENTAL VALUES:

![Graph showing solubility at 35°C, g/100g vs % PEG 4000]

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**
An earlier described method was employed (1) whereby a 100-ml conical flask contg a PEG 4000 soln was placed in a drying cabinet at 35°C and an excess of sulfathiazole was added under stirring for 1 h. After 12 h the soln was filtered or decanted and the solute was assayed in the filtrate spectrophotometrically using a Unicam SP 500 spectrophotometer and 1-ml quartz cuvets. Results were taken from a calibration curve.

**SOURCE AND PURITY OF MATERIALS:**
Neither source nor purity of sulfathiazole and water were specified. PEG 4000 was a product of Farbwerke Hoechst (purity not specified).

**ESTIMATED ERROR:**
Nothing specified

### REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₇N₃O₂S₂; [72-14-0]
(2) Sorbitan monolaurate, polyoxyethylene derivatives (Tween 20); [9005-64-5]
(3) Water; H₂O; [7732-18-5]

VARIABLES:
Concentration of Tween 20

EXPERIMENTAL VALUES:

![Graph showing solubility at 35°C for Tween 20 concentrations ranging from 0 to 100%]

ORIGINAL MEASUREMENTS:

PREPARED BY:
R. Piekos

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An earlier described method was employed (1) whereby a 100-ml conical flask contg a Tween 20 soln was placed in a drying cabinet at 35°C and an excess of sulfathiazole was added under stirring for 1 h. After 12 h the soln was filtered or decanted and the solute was assayed in the filtrate spectrophotometrically using a Unicam SP 500 spectrophotometer and 1-ml quartz cuvets. Results were taken from a calibration graph.

SOURCE AND PURITY OF MATERIALS:
Neither source nor purity of sulfathiazole and water were specified.
Tween 20 was supplied by Atlas-Goldschmidt A.G., Essen (purity not specified).

ESTIMATED ERROR:
Nothing specified

REFERENCES:
### COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
2. Sorbitan monolaurate, polyoxyethylene derivatives (Tween 20); [9005-64-5]
3. Water; H₂O; [7732-18-5]

### ORIGINAL MEASUREMENTS:

Gusyakov, V.P.; Likhol'ot, N. M.; Kutna, I.M.; Farm. Zh. (Kiev) 22(3), 34-9.

### VARIABLES:

One temperature: 20°C

### EXPERIMENTAL VALUES:

\[
\frac{S}{S_0} = 2.0 \text{ at } 20^\circ C
\]

where \( S \) is the solubility of sulfathiazole in a 2% by weight Tween 20 solution, and \( S_0 \) is the solubility of sulfathiazole in water (0.043 g/100 ml).

Hence \( S = 0.086 \text{ g/100 ml (} 3.4 \times 10^{-3} \text{ mol dm}^{-3} \) ), compiler.

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**

An excess of sulfathiazole in a 2% by wt aq Tween 20 soln was equilibrated for 24 h in an ampul immersed in a water thermostat. Aliquots of the satd soln were withdrawn through a filter and the sulfathiazole content was assayed in the filtrate photometrically.

**SOURCE AND PURITY OF MATERIALS:**

Sulfathiazole conformed to the requirements of the State Pharmacopeia IX.

Tween 20 was a product of Gee Lawson, England.

Purity of the water was not specified.

**ESTIMATED ERROR:**

Soly: not specified.

Temp: ±0.1°C (authors).

**REFERENCES:**
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C_9H_9N_3O_2S_2; [72-14-0]</td>
<td>Gusyakov, V. P.; Likhol'ot, N. M.</td>
</tr>
<tr>
<td>(3) Water; H_2O; [7732-18-5]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 20°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>( S/S_0 = 2.0 \text{ at 20°C} )</td>
<td></td>
</tr>
<tr>
<td>where ( S ) is the solubility of sulfathiazole in a 2% weight Tween 40 solution in water, and</td>
<td></td>
</tr>
<tr>
<td>( S_0 ) is the solubility of sulfathiazole in water (0.043 g/100 ml).</td>
<td></td>
</tr>
<tr>
<td>Hence ( S = 0.086 \text{ g/100 ml (3.4 x 10^{-3} \text{ mol dm}^{-3})} ), compiler.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AUXILIARY INFORMATION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>METHOD/APPARATUS/PROCEDURE:</td>
<td>SOURCE AND PURITY OF MATERIALS:</td>
</tr>
<tr>
<td>An excess of sulfathiazole in a 2% by wt aq Tween 40 soln was equilibrated for 24 h in an ampul immersed in a water thermostat. Aliquots of the satd soln were withdrawn through a filter and the sulfathiazole content was assayed in the filtrate photometrically.</td>
<td>Sulfathiazole conformed to the requirements of the State Pharmacopeia IX. Tween 40 was a product of Gee Lawson, England. Purity of the water was not specified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESTIMATED ERROR:</th>
<th>REFERENCES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soly: not specified.</td>
<td></td>
</tr>
<tr>
<td>Temp: ±0.1°C (authors).</td>
<td></td>
</tr>
</tbody>
</table>
### COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); 
   \( \text{C}_9\text{H}_9\text{N}_3\text{O}_2\text{S}_2 \); [72-14-0]

(2) Sorbitan monooleate, polyoxyethylene derivatives (Tween 80); [9005-65-6]

(3) Water; \( \text{H}_2\text{O} \); [7732-18-5]

### VARIABLES:

- One temperature: 20°C

### EXPERIMENTAL VALUES:

\[
\frac{S}{S_o} = 2.0 \text{ at } 20°C
\]

where \( S \) is the solubility of sulfathiazole in a 2% by weight aqueous Tween 80 solution, and

\( S_o \) is the solubility of sulfathiazole in water (0.043 g/100 ml).

Hence \( S = 0.086 \text{ g/100 ml} \) (3.4 \( \times 10^{-3} \) mol dm\(^{-3} \)), compiler.

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**

An excess of sulfathiazole in a 2% by wt aq Tween 80 soln was eqilibrated for 24 h in an ampul immersed in a water thermostat. Aliquots of the satd soln were withdrawn through a filter and the sulfathiazole content was assayed in the filtrate photometrically.

**SOURCE AND PURITY OF MATERIALS:**

Sulfathiazole conformed to the requirements of the State Pharmacopeia IX.

Tween 80 was a product of Gee Lawson, England.

Purity of the water was not specified.

**ESTIMATED ERROR:**

- Soly: not specified.
- Temp: ±0.1°C (authors).

**REFERENCES:**


PREPARED BY:

R. Piekos
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₇N₃O₂S₂; [72-14-0]</td>
<td>Lott, W. A.; Bergeim, F. H.  J. Am. Chem. Soc. 1939, 61, 3593-4.</td>
</tr>
<tr>
<td>(2) Ethanol; C₂H₆O; [64-17-5]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 26°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

**EXPERIMENTAL VALUES:**

Solubility of sulfathiazole in ethanol at 26°C is 525 mg/100 cm³ (2.06 x 10⁻² mol dm⁻³, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

Nothing specified.

**SOURCE AND PURITY OF MATERIALS:**

Sulfathiazole, mp 197-7.5°C (uncor) and 202.0-2.5°C (cor) was prepd by the authors. Purity of the ethanol was not specified.

**ESTIMATED ERROR:**

Nothing specified.

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
C₉H₉N₃O₂S₂; [72-14-0]
(2) 2-Propanol; C₃H₈O; [67-63-0]

ORIGINAL MEASUREMENTS:

VARIABLES:
One temperature: 25°C

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in 2-propanol at 25°C is 0.5750 g/100 cm³
solution (2.252 x 10⁻² mol dm⁻³, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Satd solns of sulfathiazole in 2-propanol were prep'd at 25°C and definite vols of the
solns were measured into tared dishes by means of standard pipets. The alcohol was
allowed to evap at room temp and the residue was dried at 105°C. In the case of losses
due to apparent decompn, the residue was dried in a desiccator (1).

SOURCE AND PURITY OF MATERIALS:
The sulfathiazole was manufd by Merck and was of the U.S.P. purity. The source and
purity of 2-propanol was not specified.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
C₉H₉N₃O₂S₂; [72-14-0]
(2) 2-Propanol; C₃H₈O; [67-63-0]

ORIGINAL MEASUREMENTS:
Kuhnert-Brandstätter, M.; Martinek, A.

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Saturation solubility a</th>
<th>Crystalline form I</th>
<th>Crystalline form II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>g/100 g solution</td>
<td>10² mol kg⁻¹ solution</td>
<td>g/100 g solution</td>
</tr>
<tr>
<td>30.5</td>
<td>0.400</td>
<td>1.567</td>
<td>-</td>
</tr>
<tr>
<td>31.0</td>
<td>-</td>
<td>-</td>
<td>0.220</td>
</tr>
<tr>
<td>40.5</td>
<td>0.500</td>
<td>1.958</td>
<td>0.310</td>
</tr>
<tr>
<td>50.5</td>
<td>0.660</td>
<td>2.585</td>
<td>0.510</td>
</tr>
<tr>
<td>59.5</td>
<td>0.890</td>
<td>3.486</td>
<td>-</td>
</tr>
<tr>
<td>60.0</td>
<td>-</td>
<td>-</td>
<td>0.735</td>
</tr>
<tr>
<td>61.0</td>
<td>-</td>
<td>-</td>
<td>0.770</td>
</tr>
<tr>
<td>65.0</td>
<td>-</td>
<td>-</td>
<td>0.880</td>
</tr>
<tr>
<td>69.0</td>
<td>1.215</td>
<td>4.759</td>
<td>-</td>
</tr>
<tr>
<td>70.0</td>
<td>1.260</td>
<td>4.935</td>
<td>1.085</td>
</tr>
</tbody>
</table>

a Numerical data received from the authors.
b Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfathiazole and 2-propanol were placed in a polyethylene vessel, agitated for 3 h, filtered, and the sulfonamide was assayed in the filtrate gravimetrically. The solid phase was examined thermomicroscopically for identity of the crystal form.

SOURCE AND PURITY OF MATERIALS:
A commercial available form II of sulfathiazole was used. Form I was obtained by keeping the commercial reagent at 170°C for 2 h. The source and purity of 2-propanol was not specified.

ESTIMATED ERROR:
Soly: not specified.
Temp: ±0.5°C (authors).

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
C₉H₉N₃O₂S₂; [72-14-0]
(2) Ethanol, 2-ethoxy-; C₄H₁₀O₂;
[110-80-5]

ORIGINAL MEASUREMENTS:
Sunwoo, C.; Eisen, H.
J. Pharm. Sci. 1971, 60, 238-44.

VARIABLES:
One temperature: 25°C

EXPERIMENTAL VALUES:

The mole fraction solubility of crystalline form II of sulfathiazole
in 2-ethoxyethanol at 25°C is 0.0224 (6.09 g/100 g solution,
compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Soly was detd by the method reported by
Restaino and Martin (1). Sulfathiazole was
assayed spectrophotometrically on a Coleman-
Hitachi 124 double-beam spectrophotometer
at 280 nm after dilg the sample with 95%
EtOH or water.

SOURCE AND PURITY OF MATERIALS:
Sulfathiazole (American Cyanamid Co.,
Pearl River, N.Y.) was recrystd from super-
satd soln of warm acetone to give cryst
form II.
Industrial grade 2-ethoxyethanol (Cellosolve
solvent, Union Carbide Corp., New York, N.Y.)
was used.

ESTIMATED ERROR:
Temp: ±1.0°C (authors).
Soly: the mean of 3 runs was given
(authors).

REFERENCES:
1. Restaino, F. A.; Martin, A. N.
COMPONENTS: ORIGINAL MEASUREMENTS:

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₇N₃O₂S₂; [72-14-0]

(2) 2-Butanol; C₄H₁₀O; [78-92-2]

(3) Ethanol; C₂H₆O; [64-17-5]

Mehta, S. C.; Bernardo, P. D.; Higuchi, W. I.; Simonelli, A. P.


VARIABLES:

One temperature: 30°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in a 60% v/v mixture of ethanol in 2-butanol, at 30°C, is 0.555 g/100 g (2.17 x 10⁻² mol kg⁻¹, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of the amt of the recrystd sulfathiazole needed to produce a satd soln was placed in a volumetric flask with the solvent and agitated in a water bath at 30°C. Duplicate samples were withdrawn at 12-24-h intervals, filtered through a 0.45-μm Millipore filter, and analyzed spectrophotometrically.

SOURCE AND PURITY OF MATERIALS:

Sulfathiazole (source not specified) was purified by crystallization. The source and purity of the remaining materials was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:
COMPONENTS:  
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);  
C9H9N3O2S2; [72-14-0]  
(2) Methane, trichloro- (chloroform);  
CHCl₃; [67-66-3]

ORIGINAL MEASUREMENTS:  
Riess, W.  

VARIABLES:  
One temperature: 20°C

PREPARED BY:  
R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in chloroform at 20°C is 15 mg%  
( 5.9 x 10⁻⁴ mol dm⁻³ solution, compiler ).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:  
Nothing specified.

SOURCE AND PURITY OF MATERIALS:  
Nothing specified.

ESTIMATED ERROR:  
Nothing specified.

REFERENCES:
### COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
2. Methane, trichloro- (chloroform); CHCl₃; [67-66-3]

### ORIGINAL MEASUREMENTS:

### VARIABLES:
One temperature: 30°C

### PREPARED BY:
R. Piekos

### EXPERIMENTAL VALUES:

Solubility of sulfathiazole in chloroform at 30°C is 0.48 mmol/L.

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**
Sulfathiazole (0.5 g) was placed in an L-shaped tube together with 20 ml of chloroform. The mixture was then shaken in a thermostat until equilibrium was attained. The sulfathiazole was then assayed in the supernatant spectrophotometrically at 545 nm on a Beckmann DU spectrophotometer. The results were taken from a calibration graph.

**SOURCE AND PURITY OF MATERIALS:**
Nothing specified.

**ESTIMATED ERROR:**
Soly: not specified.
Temp: ±1°C (authors).

**REFERENCES:**
**COMPONENTS:**

1. Benzene sulphonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
   C$_9$H$_9$N$_3$O$_2$S$_2$; [72-14-0]

2. Methane, trichloro-; CHCl$_3$; [67-66-3]

**ORIGINAL MEASUREMENTS:**


**VARIABLES:**

One temperature: 37°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfathiazole in CHCl$_3$ at 37°C is 0.843 mmol dm$^{-3}$ solution.

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

One ml of the sulfathiazole soln in CHCl$_3$ at equilibrium was taken into a test tube. After evapn of the solvent, the residue was dissolved in 1N NaOH, the soln was properly dild with deionized water and the concn of sulfathiazole was detd by diazotization.

**SOURCE AND PURITY OF MATERIALS:**

Comm available sulfathiazole (source not specified) was used as supplied. Neither source nor purity of the CHCl$_3$ was specified.

**ESTIMATED ERROR:**

Soly: not specified.
Temp: ±1°C (authors).

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
(2) 2-Propanone (acetone); C₃H₆O; [67-64-1]

ORIGINAL MEASUREMENTS:
Gutierrez, F. H.
Anales fis. quim. (Madrid) 1945, 41, 537-60.

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>G⁰</th>
<th>Eᵇ</th>
<th>Xᵇ/₁c</th>
<th>mol/lᵈ acetone</th>
<th>mmol/mol acetone</th>
<th>1:Xᵇ</th>
<th>1 + X(cube)ᶜᶜ</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.994</td>
<td>0.984</td>
<td>8.097</td>
<td>31.7</td>
<td>2.26</td>
<td>100.60</td>
<td>123.50</td>
</tr>
<tr>
<td>5</td>
<td>1.247</td>
<td>1.212</td>
<td>10.086</td>
<td>39.5</td>
<td>2.84</td>
<td>80.19</td>
<td>99.15</td>
</tr>
<tr>
<td>10</td>
<td>1.506</td>
<td>1.484</td>
<td>12.093</td>
<td>47.4</td>
<td>3.43</td>
<td>64.41</td>
<td>82.72</td>
</tr>
<tr>
<td>15</td>
<td>1.728</td>
<td>1.699</td>
<td>13.774</td>
<td>53.9</td>
<td>3.93</td>
<td>57.87</td>
<td>72.60</td>
</tr>
<tr>
<td>20</td>
<td>2.025</td>
<td>1.985</td>
<td>16.022</td>
<td>62.7</td>
<td>4.61</td>
<td>49.38</td>
<td>62.41</td>
</tr>
<tr>
<td>25</td>
<td>2.349</td>
<td>2.295</td>
<td>18.484</td>
<td>72.4</td>
<td>5.34</td>
<td>42.58</td>
<td>54.10</td>
</tr>
<tr>
<td>30</td>
<td>2.653</td>
<td>2.584</td>
<td>20.675</td>
<td>80.9</td>
<td>6.03</td>
<td>37.69</td>
<td>48.37</td>
</tr>
<tr>
<td>35</td>
<td>3.000</td>
<td>2.913</td>
<td>23.199</td>
<td>90.8</td>
<td>6.82</td>
<td>33.33</td>
<td>43.11</td>
</tr>
<tr>
<td>40</td>
<td>3.380</td>
<td>3.269</td>
<td>25.938</td>
<td>101.6</td>
<td>7.70</td>
<td>29.58</td>
<td>38.71</td>
</tr>
<tr>
<td>45</td>
<td>3.704</td>
<td>3.571</td>
<td>28.200</td>
<td>110.4</td>
<td>8.43</td>
<td>26.99</td>
<td>35.46</td>
</tr>
<tr>
<td>50</td>
<td>4.133</td>
<td>3.969</td>
<td>31.225</td>
<td>122.3</td>
<td>9.40</td>
<td>24.19</td>
<td>32.02</td>
</tr>
</tbody>
</table>

a⁰ = \frac{p}{P - p}, where p and P are the weights of solute and solution, resp.

bᵇ = \frac{c}{c + 100}; c⁰ g/l acetone; d⁰ should be mmol/l acetone (compiler);

e⁰ g of acetone required to dissolve 1 g of solute; f volume (cm³) of acetone required to dissolve 1 g of solute.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A special all-glass app was constructed enabling the prepn of satd solns, agitation by bubbling a stream of acetone-satd N₂, filtration and distn of the solvent without contact with air. Two exchangeable dissoln vessels of 15 and 8 cm³ working capacity were used depending on the solv of solute. The app was immersed in a thermostat. The vols of acetone used were 15 or 5 cm³, and the equilibration time was 2-2.5 h. The satd solns were filtered, weighed, the solvent was distd off, the residues were dried at 105°C, weighed and examd for the presence of solvated acetone.

SOURCE AND PURITY OF MATERIALS:
The source of the materials was not specified. Pure, anhyd acetone was used. The absence of impurities and water was confirmed by procedures of the German Pharmacopeia VI and Spanish Pharmacopeia VIII. The purity of sulfathiazole was not specified.

ESTIMATED ERROR:
Soly: measurements were repeated until 2 values not differing in the second decimal were obtained (author). Temp: ±0.1°C (author).

REFERENCES:
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
   \[C_9H_9N_2O_2S_2\] [72-14-0]
2. Methylcyclohexanone; \[C_7H_{12}O\] [1331-22-2]

**ORIGINAL MEASUREMENTS:**

Barber, H. J.; Wilkinson, J. H.

**VARIABLES:**

One temperature: 25°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Approximate solubility of sulfathiazole in methylcyclohexanone at 37°C is 8.5 percent w/v (0.33 mol dm⁻³ solution, compiler).

**METHOD/APPARATUS/PROCEDURE:**

Nothing specified.

**SOURCE AND PURITY OF MATERIALS:**

Nothing specified

**ESTIMATED ERROR:**

Nothing specified

**REFERENCES:**


COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C$_9$H$_9$N$_3$O$_2$S$_2$; [72-14-0]
(2) Methylcyclohexanone; C$_7$H$_{12}$O; [1331-22-2]

VARIABLES:
One temperature: 25°C

EXPERIMENTAL VALUES:

Approximate solubility of sulfathiazole in methylcyclohexanone at 25°C is 8.5 percent w/v (0.33 mol dm$^{-3}$ solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Nothing specified

SOURCE AND PURITY OF MATERIALS:
Nothing specified

ESTIMATED ERROR:
Nothing specified

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
C₉H₉N₃O₂S₂; [72-14-0]
(2) Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy-(PEG 400); (C₂H₄O)ₙH₂O; [25322-68-3]

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>weight %</th>
<th>mol kg⁻¹ a</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>22</td>
<td>1.1</td>
</tr>
<tr>
<td>60</td>
<td>22</td>
<td>1.1</td>
</tr>
</tbody>
</table>

a Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The solv. detns were made in 100-cm³ Erlenmeyer flasks immersed in a const-temp bath. The suspension was stirred with an electrically driven propeller stirrer for a least 4 h.

SOURCE AND PURITY OF MATERIALS:
The source and purity of sulfathiazole was not specified. PEG 400: pH 4.7 (1.00 g in 20.0 g of water); ash content 0.030%; free acid: 0.30 cm³ of 0.1N NaOH was required to neutralize free acids in 5.0 g of PEG 400 dissolved in 20 cm³ of EtOH; average mol wt 400; water content 0.2%.

ESTIMATED ERROR:
Temp: ±0.5°C (author).
Soly: duplicate tests were made of concns on both sides of the borderline value (author).

REFERENCES:

ORIGINAL MEASUREMENTS:

PREPARED BY:
R. Piekos
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₈N₃O₂S₂; [72-14-0]</td>
<td>Gusyakov, V.P.; Likhol'ot, N.M.; Kutns, I.M. Farm. Zh. (Kiev) 1968, 23(6), 56-61.</td>
</tr>
<tr>
<td>(2) Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (PEG 400); (C₂H₄O)ₙH₂O; [25322-68-3]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 21-25°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in α-hydro-ω-hydroxy poly(oxy-1,2-ethanediyl) 400 at room temperature (21-25°C) is 28% by weight (1.5 mol kg⁻¹ PEG 400, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Small quantities (2-4 mg) of sulfathiazole were added to a known quantity of PEG 400 under stirring until satn was attained.

SOURCE AND PURITY OF MATERIALS:

Sulfathiazole: neither source nor purity was specified. PEG 400: source not specified; sp. gr. 1.127 g cm⁻³; temp of solidification approx 6°C; refractive index 1.466 (temp not indicated).

ESTIMATED ERROR:

Nothing specified.

REFERENCES:
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C$_9$H$_9$N$_3$O$_2$S$_2$; [72-14-0]
2. Poly(oxy-1,2-ethanediyl), α-hydroxy- (poly(ethylene glycol) 3000); (C$_2$H$_4$O)$_n$H$_2$O; [25322-68-3]

**VARIABLES:**

One temperature: 60°C

**EXPERIMENTAL VALUES:**

Solubility of sulfathiazole in poly(ethylene glycol) 3000 at 60°C is 20% by weight (0.98 mol kg$^{-1}$, compiler).

**ORIGINAL MEASUREMENTS:**

Wahlgren, S.; Svensk farm. tidsskr. 1962, 68, 585-91.

**PREPARED BY:**

R. Piekos

---

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

The soly detns were made in 100-cm$^3$ Erlenmeyer flasks immersed in a const-temp bath. The suspension was stirred with an electrically driven propeller stirrer for at least 4 h.

**SOURCE AND PURITY OF MATERIALS:**

The source and purity of sulfathiazole was not specified. PEG 3000: mp 56°C; pH 6.4 (1.00 g in 20.0 g of water); ash content 0.025%; free acid: 0.05 cm$^3$ of 0.1N NaOH was required to neutralize free acids in 5.0 g of PEG dissolved in 20 cm$^3$ of EtOH against phenolphthalein; average mol wt 3000: water content 0.4%.

**ESTIMATED ERROR:**

Temp: ±0.5°C (author).
Soly: duplicate tests were made of concns on both sides of the borderline value (author).

**REFERENCES:**
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C$_9$H$_9$N$_3$O$_2$S$_2$; [72-14-0]</td>
</tr>
<tr>
<td>(2) Cottonseed oil</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whitworth, C. W.; Becker, C. H.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 37.5°C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility of sulfathiazole in cottonseed oil at 37.5°C is 0.863 mg%</td>
</tr>
<tr>
<td>(3.38 x 10$^{-5}$ mol dm$^{-3}$ solution, compiler).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>METHOD/APPARATUS/PROCEDURE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A satd soln of sulfathiazole in cottonseed oil was made and filtered carefully at a const temp to remove suspended particles. A portion of the soln was shaken for 4 h with 100 ml of EtOH. The alcoholic layer was centrifuged for 30 min. Aliquot portions of the alcoholic soln were allowed to evap to dryness, a trichloroacetic acid soln added, and subsequently the Marshall reagents. From the intensity of the color developed it was possible to det the amt of the drug extd by the process utilized. A Klett-Summerson colorimeter with a No 54 filter was employed to det the color intensity, which was compared to that of standard solns.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOURCE AND PURITY OF MATERIALS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfathiazole (N.F. grade) was from Eli Lilly and Co.</td>
</tr>
<tr>
<td>Neither source nor purity of the cottonseed oil was specified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESTIMATED ERROR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soly: not specified</td>
</tr>
<tr>
<td>Temp: ±1°C (authors)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REFERENCES:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
COMPONENTS:
1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
2) Sorbitan, (Z)-9-octadecenoate (2:3) (Arlacel 83); [8007-43-0]
3) White petrolatum (liquid petrolatum)

VARIABLES:
Concentration of Arlacel 83

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Concentration of Arlacel 83</th>
<th>Solubility at 37.5°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg%</td>
</tr>
<tr>
<td>1</td>
<td>2.178</td>
</tr>
<tr>
<td>5</td>
<td>2.272</td>
</tr>
<tr>
<td>10</td>
<td>17.136</td>
</tr>
</tbody>
</table>

ᵃ Calculated by compiler

ORIGINAL MEASUREMENTS:
Whitworth, C.W.; Becker, C. H.

PREPARED BY:
R. Piekos

METHOD/APPARATUS/PROCEDURE:
A satd soln of sulfathiazole in the solvent was made and filtered carefully at a const temp to remove all suspended particles. A 5-ml portion of the soln was shaken for 4 h with 100 ml of EtOH. The alcoholic layer was centrifuged for 30 min. Aliquot portions of the alcoholic solns were allowed to evap to dryness, a trichloroacetic acid soln was added, and subsequently the Marshall reagents. From the intensity of the color developed it was possible to det the amt of the drug extd by the process utilized. A Klett-Summerson colorimeter with a No 54 filter was employed to det the color intensity, which was compared to that of standard solns.

SOURCE AND PURITY OF MATERIALS:
Sulfathiazole (N.F. grade) was from Eli Lilly and Co.
Arlacel 83 (Lot No 129) was from Atlas Powder Co. (purity not specified).
White petrolatum (liquid petrolatum) (U.S.P. grade) was from Fisher Scientific Co.

ESTIMATED ERROR:
Soly: not specified
Temp: 31°C (authors)

REFERENCES:
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C9H9N3O2S2; [72-14-0]

(2) Cottonseed oil

(3) Sorbitan, (Z)-9-octadecenolate (2:3) (Arlacel 83); [8007-43-0]

ORIGINAL MEASUREMENTS:

Whitworth, C. W.; Becker, C. H.

VARIABLES:

Concentration of Arlacel 83

<table>
<thead>
<tr>
<th>Concentration of Arlacel 83</th>
<th>Solubility at 37.5°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>mg%</td>
</tr>
<tr>
<td>1</td>
<td>0.798</td>
</tr>
<tr>
<td>5</td>
<td>8.098</td>
</tr>
<tr>
<td>10</td>
<td>19.953</td>
</tr>
</tbody>
</table>

^a Calculated by compiler

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

METHOD/APPARATUS/PROCEDURE:

A satd soln of sulfathiazole in the solvent was made and filtered carefully at a const temp to remove all suspended particles. A 5-ml portion of the soln was shaken for 4 h with 100 ml of EtOH. The alcoholic layer was centrifuged for 30 min. Aliquot portions of the alcoholic soln were allowed to evap to dryness, a trichloroacetic acid soln was added, and subsequently the Marshall reagents. From the intensity of the color developed it was possible to det the amt of the drug extd by the process utilized. A Klett-Summerson colorimeter with a No 54 filter was employed to det the color intensity , which was compared to that of standard solns.

SOURCE AND PURITY OF MATERIALS:

Sulfathiazole (N.F. grade) was from Eli Lilly and Co.
Neither source nor purity of the cottonseed oil was specified.
Arlacel 83 (Lot No 129) was from Atlas Powder Co. (purity not specified).

ESTIMATED ERROR:

Soly: not specified
Temp: ±1°C (authors)

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C₉H₉N₃O₂S₂; [72-14-0]
(2) Hydrochloric acid; HCl; [7647-01-0]
(3) Sodium chloride; NaCl; [7647-14-5]
(4) Water; H₂O; [7732-18-5]

VARIABLES:
One temperature: 20°C

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in a simulated gastric juice (composition: 2.0 g NaCl, 25.0 g 10% HCl, and distilled water up to 1000 cm³; pH 1.2), at 20°C, is 1 part sulfathiazole in 240 parts of the gastric juice (1.6 x 10⁻² mol kg⁻¹ gastric juice - compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Soly was detd by the Pharmacopoeia Hungarica V method. The equilibration time was 2 days with occasional shaking (personal communication). The concn of the solute in the satd soln was detd spectrophotometrically at 282 nm using a Spektromom 195 spectrophotometer.

SOURCE AND PURITY OF MATERIALS:
The source and purity of sulfathiazole was not specified. The simulated gastric juice was prepd by the authors. The source and purity of the components was not specified. Distilled water was used.

ESTIMATED ERROR:
Soly: not specified
Temp: ±2°C (personal communication).

REFERENCES:
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole);
   C₉H₉N₃O₂S₂; [72-14-0]
(2) Cellulose, ethers, 2-hydroxypropyl ether (Klucel MF) [9004-64-2]
(3) Hydrochloric acid; HCl; [7647-01-0]
(4) Sodium chloride; NaCl; [7647-14-5]
(5) Water; H₂O; [7732-18-5]

VARIABLES:

One temperature: 20°C

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in a simulated gastric juice (composition:
2.0 g NaCl; 25.0 g 10% HCl, and distilled water up to 1000 cm³; pH 1.2),
containing 0.5% Klucel MF, at 20°C, is 1 part sulfathiazole in 135 parts of
the simulated gastric juice containing 0.5% Klucel MF (2.9 x 10⁻² mol kg⁻¹
simulated gastric juice containing 0.5% Klucel MF - compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Soly was detd by the Pharmacopeia Hungarica V method. The equilibration time was 2 days
with occasional shaking (personal communication). The concn of the solute in the
satd soln was detd spectrophotometrically at 282 nm using a Spektromom 195 spectro-
photometer.

SOURCE AND PURITY OF MATERIALS:

The source and purity of sulfathiazole was specified. The simulated gastric juice contg
0.5% Klucel MF was prepd by the authors. The source and purity of the components was not
specified. Distilled water was used.

ESTIMATED ERROR:

Soly: not specified
Temp: ±2°C (personal communication).

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C9H9N3O2S2; [72-14-0]
(2) Cellulose, ethers, 2-hydroxypropyl methyl ether (Methocel 65 HG) [9004-65-3]
(3) Hydrochloric acid; HCl; [7647-01-0]
(4) Sodium chloride; NaCl; [7647-14-5]
(5) Water; H2O ; [7732-18-5]

ORIGINAL MEASUREMENTS:

VARIABLES:
One temperature: 20°C

EXPERIMENTAL VALUES:

Solubility of sulfathiazole in a simulated gastric juice (composition: 2.0 g NaCl, 25.0 g 10% HCl, and distilled water up to 1000 cm³; pH 1.2 ), containing 0.5% Methocel 65 HG, at 20°C, is 1 part sulfathiazole in 160 parts of the simulated gastric juice containing 0.5% Methocel 65 HG (2.4 x 10^-2 mol kg^-1 simulated gastric juice containing 0.5% Methocel 65 HG - compiler ).

METHOD/APPARATUS/PROCEDURE:
Soly was detd by the Pharmacopeia Hungarica V method. The equilibration time was 2 days with occasional shaking (personal communication). The concn of the solute in the satd soln was detd spectrophotometrically at 282 nm using a Spektromom 195 spectrophotometer.

SOURCE AND PURITY OF MATERIALS:
The source and purity of sulfathiazole was not specified. The simulated gastric juice contg 0.5% Methocel 65 HG was prepd by the authors. The source and purity of the components was not specified. Distilled water was used.

ESTIMATED ERROR:
Soly: not specified
Temp: ±2°C (personal communication)

REFERENCES:
COMPONENTS:

1. Benzene sulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C_{9}H_{9}N_{3}O_{2}S_{2}; [72-14-0]
2. Benzene sulfonamide, 4-amino-N-2-thiazolyl-2-pyrrolidinone, 1-ethenyl-, homopolymer, complex; C_{9}H_{9}N_{3}O_{2}S_{2}·(C_{6}H_{9}NO)_{x}; [*]
3. 2-Pyrrolidinone, 1-ethenyl-, homopolymer (povidone); (C_{6}H_{9}NO)_{x}; [9003-39-8]
4. Water; H_{2}O; [7732-18-5]

VARIABLES: Concentration of povidone

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Amount of povidone</th>
<th>Amount of complexed sulfathiazole</th>
<th>Amount of complex</th>
<th>Solubility at 25°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>expressed as mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>sulfathiazole</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>per ml of water</td>
</tr>
<tr>
<td>20</td>
<td>11.48</td>
<td>31.48</td>
<td>2.45</td>
</tr>
<tr>
<td>40</td>
<td>22.96</td>
<td>62.96</td>
<td>5.02</td>
</tr>
<tr>
<td>60</td>
<td>34.44</td>
<td>84.44 b</td>
<td>7.60</td>
</tr>
</tbody>
</table>

a Calculated by compiler
b Should be 94.44 - compiler

[*] This complex is not registrable by the conventions of the CAS Registry System (information from Knox Hazelton, Exptl. Services of Ca.; Jan. 12, 1981) - compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Mixts contg a weighed excess of sulfathiazole and a povidone-sulfathiazole coacervated system were placed in 25-ml ampuls contg 10 ml of water. The ampuls were sealed and placed on a rotating shaft (42 rpm) immersed in a water bath at 25±1°C. Duplicate samples were withdrawn, filtered, and assayed spectrophotometrically at 283 nm.

SOURCE AND PURITY OF MATERIALS:
Sulfathiazole was of the BP 1963 purity. The povidone-sulfathiazole coacervated systems were prepd by the authors. Povidone (mol wt 25,000) was manufd by BASF (West Germany). Purity of the water was not specified.

ESTIMATED ERROR:
Soly: not specified.
Temp: ±1°C (authors).

REFERENCES:
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- monohydrochloride (sulfathiazole hydrochloride); \( \text{C}_9\text{H}_9\text{N}_3\text{O}_2\text{S}_2\cdot\text{HCl}; \ [23325-73-7] \)

(2) Water; \( \text{H}_2\text{O}; \ [7732-18-5] \)

ORIGINAL MEASUREMENTS:

Lott, W. A.; Bergeim, F. H.


VARIABLES:

One temperature: \( 26^\circ\text{C} \)

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfathiazole hydrochloride in water at \( 26^\circ\text{C} \) is less than \( 2\% \ (7 \times 10^{-2} \text{ mol kg}^{-1} \text{ solution}, \text{ compiler} ).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Nothing specified

SOURCE AND PURITY OF MATERIALS:

Sulfathiazole hydrochloride, mp 193-7\(^{\circ}\text{C}\) (uncor), was prepd by the authors by adding alcoholic \text{HCl} to an alcoholic soln of sulfathiazole and adding ether. Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified

REFERENCES:
### COMPONENTS:
1. Cobalt, bis(4-amino-N-2-thiazoylbenzenesulfonamidato-N\(^N\)\(^2\))-, hydrate; C\(_{18}\)H\(_{16}\)CoN\(_6\)O\(_4\)S\(_4\)•nH\(_2\)O; [86729-22-8]
2. Hydrochloric acid; HCl; [7647-01-0]
3. Water; H\(_2\)O; [7732-18-5]

### VARIABLES:
- pH

### ORIGINAL MEASUREMENTS:

### EXPERIMENTAL VALUES:

\[ K_{so} \text{ over the HCl concentration range } 2.5 \times 10^{-2} - 2.5 \times 10^{-5} \text{ mol cm}^{-3}, \]

at 25\(^\circ\)C, is 2.46 \times 10^{-12}.

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**

In a glass vessel, a mixt of 100 ml of HCl of appropriate concn and the solute was placed and shaken for 6 h in a water thermostat at 25\(^\circ\)C. After attaining equilibrium, the pH of the soln was measured and the Co\(^{2+}\) and S content detd to calculate \( K_{so} \).

**SOURCE AND PURITY OF MATERIALS:**

Nothing specified.

**ESTIMATED ERROR:**

Nothing specified.

**REFERENCES:**
### COMPONENTS:
1. Copper, bis(4-amino-2-thiazoylbenzenesulfonamidato-N2O), hydrate; C18H16CuN6O4S4·nH2O; [86729-21-7]
2. Hydrochloric acid; HCl; [7647-01-0]
3. Water; H2O; [7732-18-5]

### VARIABLES:
- pH

### EXPERIMENTAL VALUES:

\[ K_{\text{so}} \]

Over the HCl concentration range \(2.5 \times 10^{-2} - 2.5 \times 10^{-5}\) mol dm\(^{-3}\), at 25°C, is \(2.17 \times 10^{-17}\).

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**
In a glass vessel, a mixt of 100 ml of HCl of appropriate concn and the solute was placed and shaken for 6 h in a water thermostat at 25°C. After attaining equilibrium, the pH of the soln was measured and the Cu\(^{2+}\) and S content was detd to calculate \(K_{\text{so}}\).

**SOURCE AND PURITY OF MATERIALS:**
Nothing specified.

**ESTIMATED ERROR:**
Nothing specified.

**REFERENCES:**
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
</table>
| (1) Magnesium, \((T^-4)\)-bis(4-amino-N-2-thiazolybenzenesulfonamidato-\(\mathrm{N}^2\))-hydrate \(\text{C}_{18}\text{H}_{16}\text{MgN}_6\text{O}_4\text{S}_4\cdot n\text{H}_2\text{O} ; \quad [84812-78-2] \)
| (3) Water; H\(_2\)O; \([7732-18-5]\) | |

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(K_{so}) over the HCl concentration range (5.0 \times 10^{-3}) to (1.5 \times 10^{-5}) mol dm(^{-3}) at 25°C is (4.05 \times 10^{-6}).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AUXILIARY INFORMATION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>METHOD/APPARATUS/PROCEDURE:</td>
<td>SOURCE AND PURITY OF MATERIALS:</td>
</tr>
<tr>
<td>The earlier described apparatus and method was used (1): in a glass vessel, a mixt of 100 ml of HCl of appropriate concn and the solute were placed and shaken for 6 h in a water thermostat at 25°C. After attaining equilibrium, the pH of the soln was measured and the Mg(^{2+}) and S content was determined to calculate (K_{so}). The pH was measured on a pH-673 pH meter.</td>
<td>0.1M solns of chem pure Mg(OAc)(_2), monosodium salt of sulfathiazole, and HCl as well as doubly distd water were used. The source of the materials was not specified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESTIMATED ERROR:</th>
<th>REFERENCES:</th>
</tr>
</thead>
</table>
**COMPONENTS:**
1. Manganese, bis(4-amino-N-2-thiazolylbenzenesulfonamidato-N<sup>O</sup>)hydrate; C<sub>18</sub>H<sub>16</sub>MnN<sub>6</sub>O<sub>4</sub>S<sub>4</sub>nH<sub>2</sub>O; [84812-77-1]
2. Hydrochloric acid; HCl; [7647-01-0]
3. Water; H<sub>2</sub>O; [7732-18-5]

**VARIABLES:**
- pH

**EXPERIMENTAL VALUES:**

<table>
<thead>
<tr>
<th>Concentration of HCl (mol/1)</th>
<th>pH</th>
<th>10&lt;sup&gt;9&lt;/sup&gt; K&lt;sub&gt;s0&lt;/sub&gt; at 25°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0 x 10&lt;sup&gt;-3&lt;/sup&gt;</td>
<td>5.54</td>
<td>1.50</td>
</tr>
<tr>
<td>2.5 x 10&lt;sup&gt;-3&lt;/sup&gt;</td>
<td>5.57</td>
<td>1.48</td>
</tr>
<tr>
<td>1.0 x 10&lt;sup&gt;-3&lt;/sup&gt;</td>
<td>5.65</td>
<td>1.52</td>
</tr>
<tr>
<td>5.0 x 10&lt;sup&gt;-4&lt;/sup&gt;</td>
<td>5.79</td>
<td>1.46</td>
</tr>
<tr>
<td>2.5 x 10&lt;sup&gt;-4&lt;/sup&gt;</td>
<td>6.08</td>
<td>1.49</td>
</tr>
<tr>
<td>1.0 x 10&lt;sup&gt;-4&lt;/sup&gt;</td>
<td>6.29</td>
<td>1.51</td>
</tr>
<tr>
<td>5.0 x 10&lt;sup&gt;-5&lt;/sup&gt;</td>
<td>6.45</td>
<td>1.49</td>
</tr>
<tr>
<td>1.5 x 10&lt;sup&gt;-5&lt;/sup&gt;</td>
<td>6.72</td>
<td>1.47</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td></td>
<td><strong>1.49</strong></td>
</tr>
</tbody>
</table>

**METHOD/APPARATUS/PROCEDURE:**
The earlier described apparatus and method was used (1): in a glass vessel a mixt of 100 ml of HCl of appropriate concn and the solute were placed and shaken for 6 h in a water thermostat at 25°C. After attaining equilibrium, the pH of the soln was measured and the Mn<sup>2+</sup> and S content was detd to calculate K<sub>s0</sub>. The pH was measured on a pH-673 pH meter.

**AUXILIARY INFORMATION**

**SOURCE AND PURITY OF MATERIALS:**
0.1M solns of chemically pure Mn(OAc)<sub>2</sub>, monosodium salt of sulfathiazole and HCl as well as doubly distd water were used. The source of the materials was not specified.

**ESTIMATED ERROR:**
K<sub>s0</sub>: std deviation 2 x 10<sup>-11</sup> (compiler)
Temp and pH: not specified.

**REFERENCES:**
**COMPONENTS:**
1. Nickel, bis(4-amino-N-2-thiazolylbenzenesulfonamidato-$\text{NN}^2$)$\text{O}$-hydrate; $\text{C}_{18}\text{H}_{16}\text{N}_6\text{NiO}_4\text{S}_4\cdot\text{nH}_2\text{O}$; [84812-76-0]
2. Hydrochloric acid; HCl; [7647-01-0]
3. Water; $\text{H}_2\text{O}$; [7732-18-5]

**ORIGINAL MEASUREMENTS:**

**EXPERIMENTAL VALUES:**
Concentration of HCl (mol/l) | pH | $10^{12} K_{BO}$ at 25°C
--- | --- | ---
$2.5 \times 10^{-2}$ | 6.62 | 3.29
$1.0 \times 10^{-2}$ | 7.28 | 3.24
$5.0 \times 10^{-3}$ | 8.01 | 3.23
$2.5 \times 10^{-3}$ | 8.30 | 3.22
$1.0 \times 10^{-3}$ | 8.78 | 3.22
$5.0 \times 10^{-4}$ | 8.80 | 3.30
$2.5 \times 10^{-4}$ | 8.89 | 3.28
$1.0 \times 10^{-4}$ | 8.90 | 3.25
$5.0 \times 10^{-5}$ | 8.90 | 3.23
$2.5 \times 10^{-5}$ | 8.90 | 3.22
Mean | 3.25 | 

**METHOD/APPARATUS/PROCEDURE:**
The earlier described apparatus and method was used (1): in a glass vessel, a mixt of 100 ml of HCl of appropriate concn and the solute were placed and shaken for 6 h in a water thermostat at 25°C. After attaining equilibrium, the pH of the soln was measured and the $\text{Ni}^{2+}$ and S content was determined to calculate $K_{BO}$. The pH was measured on a pH-673 pH meter.

**AUXILIARY INFORMATION**

**SOURCE AND PURITY OF MATERIALS:**
0.1M solns of chemically pure $\text{Ni(OAc)}_2$, monosodium salt of sulfathiazole, and HCl as well as doubly distd water were used. The source of the materials was not specified.

**ESTIMATED ERROR:**
$K_{BO}$: std deviation $1 \times 10^{-13}$ (compiler).
Temp and pH: not specified.

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl-, monosodium salt (sodium sulfathiazole); C₉H₈N₃NaO₂S₂; [144-74-1]
(2) Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:

VARIABLES:
Temperature

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Solubility (g/100 g water)</th>
<th>mol kg⁻¹ watera</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>45.0</td>
<td>1.62</td>
</tr>
<tr>
<td>37</td>
<td>60.0</td>
<td>2.16</td>
</tr>
</tbody>
</table>

aCalculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A small tinted glass container contg excess Na sulfathiazole in water was shaken in a water bath thermostat for 24 h. The satd soln was then filtered by aspiration through a washed and dried asbestos filter stick into a weighed weighing bottle. The entire app was kept at the temp at which the compd was dissolved. The amt dissolved was the detd by the method of Bratton and Marshall (1), using a photoelectric colorimeter.

SOURCE AND PURITY OF MATERIALS:
Neither source nor purity of Na sulfathiazole was specified. CO₂-free distd water was used.

ESTIMATED ERROR:
Soly: not specified.
Temp: ±0.1° (authors).

REFERENCES:
**COMPONENTS:**

(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- monosodium salt, hexahydrate; C₉H₈N₃NaO₂S₂·6H₂O; [71119-42-1]

(2) Water; H₂O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**
Sapozhnikova, N. V.; Postovskii, I. Ya.

**VARIABLES:**

Temperature

**PREPARED BY:**
R. Piekos

**EXPERIMENTAL VALUES:**

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Solubility</th>
<th>Weight%</th>
<th>mol kg⁻¹ waterᵃ</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>9.7</td>
<td>0.280</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>11.0</td>
<td>0.321</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>23.7</td>
<td>0.806</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>43.8</td>
<td>2.022</td>
<td></td>
</tr>
</tbody>
</table>

ᵃ Calculated by compiler

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
The salt was dissolved in water to form a satd soln which was occasionally agitated in a glass vessel immersed in a thermostat. The equilibrium was usually attained after 1 h. Five to 100-cm³ samples of the satd soln were placed in Pt crucibles or dishes and evapd to dryness at temps lower than 110-115°C. The residue was dried to const wt at 105-110°C and weighed.

**SOURCE AND PURITY OF MATERIALS:**
Pure, recrystd salt was used.

Purity of the water was not specified.

**ESTIMATED ERROR:**
Soly: quite reliable results were obtained (authors).
Temp: ±0.05°C (authors).
**COMPONENTS:**

1. Zinc, \((\text{T}-4)-\text{bis}(4\text{-amino}-2\text{-thiazolylbenzenesulfonamidato-}{\text{N}^2,\text{O}})\)-(Zn(II) sulfathiazole);
   \(\text{C}_{18}\text{H}_{16}\text{N}_{6}\text{O}_{4}\text{S}_{4}\text{Zn}\); [12286-43-0]

2. Water; \(\text{H}_2\text{O}\); [7732-18-5]

**ORIGINAL MEASUREMENTS:**

Fox, Ch. L., Jr.; Modak, S.; Stanford, J. W.; Fox, P. L.

**VARIABLES:**

One temperature: 28-30°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of Zn(II) sulfathiazole in water at room temperature (28-30°C)\(^a\) is 50.4 mg% (8.78 x 10\(^{-4}\) mol dm\(^{-3}\) solution, compiler).

\(^a\)Value given by one of the authors (S.M.) in personal communication.

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

Satd soln of Zn(II) sulfadiazine was prepd in water and after 24 h aliquots from the clear supernatant were assayed for sulfathiazole content using the colorimetric method of Bratton and Marshall (1). The soly value was then calculated from the molecular formula.

**SOURCE AND PURITY OF MATERIALS:**

The Zn(II) sulfathiazole was prepd by the authors as follows: an inorg Zn salt was reacted with Na salt of sulfathiazole and the ppt was analyzed and characterized. No details were given, however.

Purity of the materials was not specified.

**ESTIMATED ERROR:**

Nothing specified

**REFERENCES:**

   *J. Biol. Chem.* 1939, 120, 537.
### COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-methyl-N-2-thiazolyl-; \( C_{10}H_{11}N_{3}O_{2}S_{2} \);
   [51203-19-1]
2. Water; \( H_2O \); [7732-18-5]

### VARIABLES:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature</td>
<td>( 37^\circ C )</td>
</tr>
</tbody>
</table>

### EXPERIMENTAL VALUES:

Solubility of 4-amino-N-methyl-N-2-thiazolylbenzenesulfonamide in water at \( 37^\circ C \) is 57 mg\% (\( 2.1 \times 10^{-3} \) mol dm\(^{-3}\) solution, compiler).

### AUXILIARY INFORMATION

#### METHOD/APPARATUS/PROCEDURE:

The sulfonamide was assayed colorimetrically (1). No details were given.

#### SOURCE AND PURITY OF MATERIALS:

The sulfonamide, mp 111-2\(^\circ\)C, was synthesized by the authors. Analysis: %C 45.00 (calcd 44.60); %H 4.19 (4.12); %N 15.36 (15.60). Colorimetric factor 0.618 (0.639). Purity of the water was not specified.

#### ESTIMATED ERROR:

Nothing specified

### REFERENCES:

   *J. Biol. Chem.* 1939, 128, 537.
**COMPONENTS:**

<table>
<thead>
<tr>
<th>No.</th>
<th>Component</th>
<th>CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Benzenesulfonamide, 4-amino-N-methyl-N-2-thiazolyl-</td>
<td>[7732-18-5]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Water</td>
<td>H₂O</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[7732-18-5]</td>
</tr>
</tbody>
</table>

**ORIGINAL MEASUREMENTS:**


**VARIABLES:**

- One temperature: 37°C

**EXPERIMENTAL VALUES:**

Solubility of 4-amino-N-methyl-N-2-thiazolylbenzenesulfonamide in water at 37°C is 1.15 mmol dm⁻³ solution.

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

The sulfonamide was assayed by diazotization. No details were given.

**SOURCE AND PURITY OF MATERIALS:**

The sulfonamide was synthesized by the authors. Its purity was not specified. Deionized water was used.

**ESTIMATED ERROR:**

- Soly: not specified.
- Temp: ±1°C (authors).

**REFERENCES:**
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGNAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Methane, trichloro--; ( CHCl_{3} ); [67-66-3]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: ( 37^\circ C )</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
</tr>
</thead>
</table>

Solubility of 4-amino-N-methyl-N-2-thiazolylbenzenesulfonamide in \( CHCl_{3} \) at \( 37^\circ C \) is 1415 mmol dm\(^{-3}\) solution.

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**

One ml of the sulfonamide soln in \( CHCl_{3} \) at equilibrium was taken into a test tube. After evapn of the solvent, the residue was dissolved in EtOH, the soln was properly dild with deionized water and the concn of the sulfonamide was detd by diazotization.

**SOURCE AND PURITY OF MATERIALS:**

The sulfonamide was sythesized by the authors. Its purity was not specified. Neither source nor purity of \( CHCl_{3} \) was specified.

**ESTIMATED ERROR:**

Soly: not specified.
Temp: \( \pm 1^\circ C \) (authors).

**REFERENCES:**
COMPONENTS:
(1) Acetamide, N-[4-([2-thiazo1y1amino)sulfonyl]phenyl)- (acetyl sulfathiazole);
C_{11}H_{11}N_{3}O_{3}S_{2}; [127-76-4]
(2) Water; H_{2}O; [7732-18-5]

VARIABLES:
One temperature: 37°C

EXPERIMENTAL VALUES:

Solubility of acetyl sulfathiazole in water at 37°C is 7.1 mg/100 cm³
solution (2.4 x 10^{-4} mol dm⁻³, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Excess acetyl sulfathiazole in water was heated and stirred on a steam bath for 30 min. The suspension was then agitated for 24 h in a thermostat at 37°C. A sample of the satd soln was withdrawn through a glass filter, diluted and analyzed by the Marshall method (1) using a General Electric spectrophotometer for comparing the colors developed with those of the standards.

SOURCE AND PURITY OF MATERIALS:
Acetyl sulfathiazole was prep'd by the authors by condensing recrystd acetyl sulfanilyl chloride with 2-aminothiazole in AcOEt or dioxane. Purity of the water was not specified.

ESTIMATED ERROR:
Nothing specified

REFERENCES:
### COMPONENTS:

1. Acetamide, N-[4-[(2-thiazolylamino)sulfonyl]phenyl]- (acetyl sulfathiazole); C₁₁H₁₁N₃O₃S₂; \([127-76-4]\)
2. Water; H₂O; \([7732-18-5]\)

### ORIGINAL MEASUREMENTS:

Durel, M.P.; Allinne, M.
1941, 251-9.

### VARIABLES:

- One temperature: 37°C

### PREPARED BY:

R. Piekos

### EXPERIMENTAL VALUES:

Solubility of acetyl sulfathiazole in water at 37°C is 0.10 g/liter
\((3.4 \times 10^{-4} \text{ mol dm}^{-3}, \text{ compiler})\).

### METHOD/APPARATUS/PROCEDURE:

A mixt of acetyl sulfathiazole and water was agitated for 24 hours at 37°C.

### SOURCE AND PURITY OF MATERIALS:

- Source and purity of acetyl sulfathiazole was not specified.
- Distilled water was used.

### ESTIMATED ERROR:

Nothing specified.

### REFERENCES:
COMPONENTS:
(1) Acetamide, N-4-[(2-thiazolylamino)sulfonyl]phenyl]-(acetyl sulfathiazole); C_{11}H_{11}N_{3}O_{3}S_{2}; [127-76-4]
(2) Water; H_{2}O; [7732-18-5]

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Solublity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weight%</td>
</tr>
<tr>
<td>50</td>
<td>0.013</td>
</tr>
<tr>
<td>75</td>
<td>0.047</td>
</tr>
<tr>
<td>99</td>
<td>0.126^{b}</td>
</tr>
</tbody>
</table>

^{a} Calculated by compiler
^{b} Calculated from the heat of dissolution

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Acetyl sulfathiazole was dissolved in water to form a satd soln which was occasionally agitated in a glass vessel immersed in a thermostat. The equilibrium was usually attained after 1 h. Five- to 100-cm^{3} samples of the satd soln were placed in Pt crucibles or dishes and evapd to dryness at temps lower than 110-115°C. The residue was dried to const wt at 105-110°C and weighed.

SOURCE AND PURITY OF MATERIALS:
Pure, recrystd acetyl sulfathiazole was used. Its mp conformed to that reported in the literature.
Purity of the water was not specified.

ESTIMATED ERROR:
Soly: quite reliable results were obtained at 50 and 75°C. At 99°C the accuracy was poor due to evapn of water during sampling (authors). Temp: ±0.05°C (authors).

REFERENCES:
COMPONENTS: ORIGINAL MEASUREMENTS:
(1) Acetamide, N-[4-[(2-thiazolylamino-sulfonyl)phenyl]- (acetyl sulfathiazole) 
(2) Sodium hydroxide; NaOH; [1310-73-2]
(3) Water; H₂O; [7732-18-5]

VARIABLES: 

EXPERIMENTAL VALUES:

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An excess of acetyl sulfathiazole was stirred in boiling water, the soln was cooled to 
37°C, the temp being maintained thermostatically, and 0.1N NaOH was added to increase 
the pH. The pH was measured by means of a glass electrode-calomel half-cell system 
and was permitted to reach equilibrium before a reading was taken. The drug was then 
de-acetylated and the concn of sulfathiazole in soln was detd colorimetrically by with- 
drawing a sample through a filter-tip into a preheated micropipet.

SOURCE AND PURITY OF MATERIALS:
The source and purity of acetyl sulfathiazole were not specified.
Water was doubly distilled.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
COMPONENTS:
1. Acetamide, N-[4-[(2-thiazolylamino) -sulfonyl]phenyl]- (acetyl sulfathiazole;
C₁₁H₁₁N₃O₃S₂; [127-76-4]
2. Phosphoric acid, disodium salt;
Na₂H₂P₂O₇; [7558-94-4]
3. Water; H₂O; [7732-18-5]

VARIABLES:
One temperature: ca 20°C; one pH: 8.74

EXPERIMENTAL VALUES:

Solubility of acetyl sulfathiazole in a 0.705 M (10%) Na₂H₂P₂O₇ solution of pH 8.74 at room temperature (about 20°C) is 0.060 g% (2.02 x 10⁻³ mol dm⁻³ solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Acetyl sulfathiazole (0.5 g) was dissolved in 10 cm³ of the 0.705 M (10%) Na₂H₂P₂O₇ soln of pH 8.74, shaken for 2 h at room temp (about 20°C), and filtered. The filtrate was treated with equal vol of 2N HCl and refluxed for 15 min. After proper diln, a 1-cm³ aliquot was withdrawn, acidified, cooled, and the sulfonamide content was detd colorimetrically (as sulfathiazole) by the Marshall method modified by Kimmig (1) using an Autenrieth colorimeter. The pH was detd on an ultrameter using a glass electrode.

SOURCE AND PURITY OF MATERIALS:
Acetyl sulfathiazole (source not specified) gave no coloration upon diazotization of its satd soln, thus showing absence of sulfathiazole.
The source and purity of the remaining materials was not specified.

ESTIMATED ERROR:
Soly: precision ±5% (author)
Temp: not specified
pH : ±0.05 pH unit (author)

REFERENCES:

ORIGINAL MEASUREMENTS:

PREPARED BY:
R. Piekos
### COMPONENTS:
1. Acetamide, N-[4-[(2-thiazolylamino)sulfonyl]phenyl]- (acetyl sulfathiazole; C₁₁H₁₁N₃O₃S₂; [127-76-4])
2. Phosphoric acid, monopotassium salt; KH₂PO₄ [7778-77-0]
3. Water; H₂O; [7732-18-5]

### ORIGINAL MEASUREMENTS:

### VARIABLES:
- One temperature: ca 70°C; one pH: 4.37

### PREPARED BY:
R. Piekos

### EXPERIMENTAL VALUES:

Solubility of acetyl sulfathiazole in a 0.735 M (10%) KH₂PO₄ solution of pH 4.37 at room temperature (about 20°C) is 0.0027 g% (9.08 x 10⁻⁵ mol dm⁻³ solution, compiler).

### METHOD/APPARATUS/PROCEDURE:
Acetyl sulfathiazole (0.5 g) was dissolved in 10 cm³ of the 0.735 M (10%) KH₂PO₄ soln of pH 4.37, shaken for 2 h at room temp (about 20°C), and filtered. The filtrate was treated with equal vol of 2N HCl, and refluxed for 15 min. After proper diln, a 1-cm³ aliquot was withdrawn, acidified, cooled, and the sulfonamide content was detd colorimetrically (as sulfathiazole) by Marshall method modified by Kimmig (1) using an Authenrieth colorimeter. The pH was detd on an ultraionograph using a glass electrode.

### SOURCE AND PURITY OF MATERIALS:
Acetyl sulfathiazole (source not specified) gave no coloration upon diazotization of its satd soln, thus showing absence of sulfathiazole.
The source and purity of the remaining materials was not specified.

### AUXILIARY INFORMATION

<table>
<thead>
<tr>
<th>ESTIMATED ERROR:</th>
<th>REFERENCES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temp: not specified</td>
<td></td>
</tr>
<tr>
<td>pH: ±0.05 pH unit (author)</td>
<td></td>
</tr>
</tbody>
</table>
COMPONENTS:
(1) Acetamide, N-[4-[(2-thiazolylamino-sulfonyl)phenyl]- (acetyl sulfathiazole); C$_{13}$H$_{11}$N$_3$O$_3$S$_2$; [127-76-4]
(2) Phosphoric acid, disodium salt; Na$_2$HPO$_4$; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH$_2$P0$_4$; [7778-77-0]
(4) Water; H$_2$O; [7732-18-5]

ORIGINAL MEASUREMENTS:

VARIABLES:

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

Solubility of acetyl sulfathiazole in phosphate buffer solutions at 38°C

METHOD/APPARATUS/PROCEDURE:
An excess of acetyl sulfathiazole was suspended in buffer solns (prepd by dllg appropriate mixts of Na$_2$HPO$_4$ and KH$_2$P0$_4$, 1 part to 10 parts of distd water), agitated and kept in a water bath at 38°C for about 2 h. The solns were then filtered and analyses for total sulfathiazole were made on the filtrates. Acetyl sulfathiazole was assayed colorimetrically after coupling with di-Me-1-naphthylamine using a Bausch and Lomb colorimeter fitted with a No. 74 Wratten filter. Standards were made from a stock soln of acetyl sulfathiazole contg 200 mg/liter.

SOURCE AND PURITY OF MATERIALS:
Distd water was used.
The source and purity of the remaining reagents were not specified.

ESTIMATED ERROR:
Soly: the curve represents a composite of 3 sets of detns (authors).
Temp and pH: not specified.

REFERENCES:
**COMPONENTS:**

1. Acetamide, N-[4-{(2-thiazolylamino)-sulfonyl}phenyl]- (acetyl sulfathiazole); C_{11}H_{14}N_{3}O_{3}S_{2}; [127-76-4]

2. Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]

3. Phosphoric acid, monopotassium salt; KH_{2}PO_{4}; [7778-77-0]

4. Water; H_{2}O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**

Krüger-Thiemer, E.

**VARIABLES:**

Temperature, pH

**EXPERIMENTAL VALUES:**

<table>
<thead>
<tr>
<th>Composition of 1/15 M phosphate buffer solutions</th>
<th>Solubility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Room temp (ca 20°C)</td>
</tr>
<tr>
<td></td>
<td>g% 10^4 mol dm^{-3} solution</td>
</tr>
<tr>
<td>Na_{2}HPO_{4}</td>
<td>KH_{2}PO_{4}</td>
</tr>
<tr>
<td>1.0</td>
<td>99.0</td>
</tr>
<tr>
<td>10.0</td>
<td>90.0</td>
</tr>
<tr>
<td>61.1</td>
<td>38.9</td>
</tr>
<tr>
<td>9.5</td>
<td>0.5</td>
</tr>
<tr>
<td>94.7</td>
<td>5.3</td>
</tr>
</tbody>
</table>

\(^a\) Calculated by compiler
\(^b\) Molar content; 10% buffer solution

**METHOD/APPARATUS/PROCEDURE:**

Acetyl sulfathiazole (0.5 g) was dissolved in 10 cm\(^3\) of a buffer soln, shaken for 2 h at 20°C (or left for 48 h at 37°C), and filtered at respective temp. The filtrate was treated with equal vol of 2N HCl and refluxed for 15 min. After proper diln, a 1-cm\(^3\) aliquot was withdrawn, acidified, cooled, and the sulfonamide content was detd colorimetrically (as sulfathiazole) by the Marshall method modified by Kimmig (1) using an Authenrieth colorimeter. The pH was detd on an ultraionograph using a glass electrode.

**SOURCE AND PURITY OF MATERIALS:**

Acetyl sulfathiazole (source not specified) gave no coloration upon diazotization of its satd soln, thus showing absence of sulfathiazole.

The source and purity of the remaining materials was not specified.

**ESTIMATED ERROR:**

Soly: precision ±5% (author)
RTemp: not specified
pH: ±0.05 pH unit (author)

**REFERENCES:**

COMPONENTS:
(1) Acetamide, N-[4-[(2-thiazolylamino)sulfonyl]phenyl]- (acetyl sulfathiazole)
C₁₁H₁₁N₃O₃S₂ [127-76-4]
(2) Phosphoric acid, disodium salt; Na₂HPO₄; [7558-94-4]
(3) Phosphoric acid; monopotassium salt; KH₂PO₄; [7778-77-0]
(4) Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Pulver, R.; Suter, R.
_Schweiz. Med. Wochenschr._ 1943,
73(13), 403-8.

PREPARED BY:
R. Piekos

VARIABLES:
pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>mg%</th>
<th>10⁻³ mol dm⁻³</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0</td>
<td>8</td>
<td>0.30</td>
</tr>
<tr>
<td>7.0</td>
<td>11</td>
<td>0.37</td>
</tr>
<tr>
<td>8.0</td>
<td>35</td>
<td>1.2</td>
</tr>
</tbody>
</table>

* Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Nothing specified

SOURCE AND PURITY OF MATERIALS:
Nothing specified

ESTIMATED ERROR:
Nothing specified

REFERENCES:
### COMPONENTS:

1. Acetamide, N-[4-[(2-thiazolylamino)-sulfonyl]phenyl]-(acetyl sulfathiazole); $C_{11}H_{11}N_{3}O_{5}S_{2}$; [127-76-4]
2. Phosphoric acid, disodium salt; $Na_{2}HPO_{4}$; [7558-94-4]
3. Phosphoric acid, monopotassium salt; $KH_{2}PO_{4}$; [7778-77-0]
4. Water; $H_{2}O$; [7732-18-5]

### VARIABLES:

- One temperature: $37^\circ C$; one pH: 6.1

### EXPERIMENTAL VALUES:

Solubility of acetyl sulfathiazole in M/30 phosphate buffer of pH 6.1 at $37^\circ C$ is 8.4 mg/100 ml solvent ($2.8 \times 10^{-4}$ mol dm$^{-3}$, compiler).

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**

An excess of acetyl sulfathiazole in the phosphate buffer was shaken at $37^\circ C$ for 24 h. The concn of acetyl sulfathiazole was detd by the Bratton and Marshall method (1) using a photoelec colorimeter.

**SOURCE AND PURITY OF MATERIALS:**

Neither source nor purity of the materials was specified.

**ESTIMATED ERROR:**

Soly: precision ±0.7 mg/100 ml (authors). Temp and pH: not specified.

**REFERENCES:**

COMPONENTS:
(1) Acetamide, N-[(2-thiazolylamino) sulfonyl]phenyl)-(N$^4$-acetylsulfathiazole); C$_{11}$H$_{11}$N$_3$O$_3$S$_2$; [127-76-4]
(2) Phosphoric acid, disodium salt; Na$_2$HPO$_4$; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH$_2$PO$_4$; [7778-77-0]
(4) Water; H$_2$O; [7732-18-5]

VARIABLES:

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility at 25°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg/l</td>
</tr>
<tr>
<td>5.5</td>
<td>54</td>
</tr>
<tr>
<td>7.5</td>
<td>233</td>
</tr>
</tbody>
</table>

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Satd solns of N$^4$-acetylsulfathiazole were prepd in phosphate buffers of pH 5.5 and 7.5 at room temp (25°C). The concn of the solute was measured by means of a Spectra Physics 3500B high-performance liquid chromatograph equipped with a column oven (Model 748) and a Pye-Únicam LC-UV spectrophotometric detector. The detector was connected to a 1-mV recorder. A stainless steel column (10 cm x 4.6 mm i.d.) was packed with Lichrosorb RPS, 5 µm, obtained from Chrompack. An injection loop of 100 µl was used. The oven temp was 40°C. Detection of the solute was performed at 260 nm.

SOURCE AND PURITY OF MATERIALS:
The source and purity of the materials was not specified.

ESTIMATED ERROR:
The detection limit of the solute by HPLC was 0.5 mg/l (authors). The error in temperature and pH was not specified.

REFERENCES:

ORIGINAL MEASUREMENTS:
Hekster, Y. A.; Vree, T. B.; Damsma, J. E.; Friesen, W. T.
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) 2-Propanol; C_{3}H_{8}O; [67-63-0]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 25°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
<th></th>
</tr>
</thead>
</table>

Solubility of sulfasuxidine in 2-propanol at 25°C is 0.5690 g/100 cm³ solution (1.601 x 10⁻² mol dm⁻³, compiler).

<table>
<thead>
<tr>
<th>AUXILIARY INFORMATION</th>
<th></th>
</tr>
</thead>
</table>

**METHOD/APPARATUS/PROCEDURE:**
Satd soln of sulfasuxidine in 2-propanol were prepd at 25°C and definite vols of the solns were measured into tared dishes by means of standard pipets. The alcohol was allowed to evap at room temp and the residue was dried at 105°C. In the case of losses due to apparent decompn, the residue was dried in a desiccator.

**SOURCE AND PURITY OF MATERIALS:**
The sulfasuxidine N.N.R. was manufd by Sharp and Dohme. The source and purity of 2-propanol was not specified.

**ESTIMATED ERROR:**
Nothing specified

**REFERENCES:**
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)- (sulfamethylthiazole);
   \[ \text{C}_{10}\text{H}_{11}\text{N}_{3}\text{O}_{2}\text{S}_{2}; \quad [515-59-3] \]

2. Water

**CRITICAL EVALUATION:**

Sulfamethylthiazole solubilities in water at 310K have been reported by three groups (1-3). In 1940, Roblin et al. (1), using a correct technique gave a solubility value of 1.07 \times 10^{-3} \text{ mol dm}^{-3}. Durel and Allinne’s (2) is 0.965 \times 10^{-3} \text{ mol dm}^{-3}. In this case, however, no details are provided for the analytical method or error estimate, but it is considered of sufficient accuracy to use in the average result. Sapozhnikova and Postovskii (3) provide a value at 310K of 0.869 \times 10^{-3} \text{ mol kg}^{-1}. The short equilibrium time of one hour probably mitigate against being a saturation value and was not considered further. The simple average of the two acceptable values allow for a recommended value of 1.02 \times 10^{-3} \text{ mol dm}^{-3} in water at 310K.

**REFERENCES:**

**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)-(sulfamethylthiazole); 
   \(C_{10}H_{11}N_3O_2S_2;\) [515-59-3]

2. Water; \(H_2O;\) [7732-18-5]

**ORIGINAL MEASUREMENTS:**

Roblin, R. O., Jr.; Williams, J. H.; Winnek, P. S.; English, J. P. 

**VARIABLES:**

One temperature: 37°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfamethylthiazole in water at 37°C is 28.9 mg/100 cm³ solution (\(1.07 \times 10^{-3} \text{ mol dm}^{-3}\), compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

Excess sulfamethylthiazole in water was heated and stirred on a steam bath for 30 min. The suspension was then agitated for 24 h in a thermostat at 37°C. A sample of the satd soln was withdrawn through a glass filter, dild, and analyzed by the Marshall method (1) using a General Electric recording spectrophotometer for comparing the colors developed with those of the standards.

**SOURCE AND PURITY OF MATERIALS:**

Sulfamethylthiazole had mp of 237-8°C (cor) consistent with the literature data. Purity of the water was not specified.

**ESTIMATED ERROR:**

Nothing specified

**REFERENCES:**

<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)-(sulfamethylthiazole); C_{10}H_{11}N_{3}O_{2}S_{2}; [515-59-3]</td>
<td>Durel, M.P.; Allinne, M.</td>
</tr>
<tr>
<td></td>
<td>1941, 251-9.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 37°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility of sulfamethylthiazole in water at 37°C is 0.26 g/liter</td>
</tr>
<tr>
<td>(9.65 x 10^{-4} mol dm^{-3}, compiler).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AUXILIARY INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHOD/APPARATUS/PROCEDURE:</td>
</tr>
<tr>
<td>A mixt of sulfamethylthiazole and water was agitated for 24 hours at 37°C.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOURCE AND PURITY OF MATERIALS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source and purity of sulfamethylthiazole was not specified.</td>
</tr>
<tr>
<td>Distilled water was used.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESTIMATED ERROR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing specified</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REFERENCES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>.</td>
</tr>
</tbody>
</table>
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl) (sulfamethylthiazole); C_{10}H_{11}N_{3}O_{2}S_{2}; [515-59-3]
(2) Water; H_{2}O; [7732-18-5]

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Weight%</th>
<th>(10^2) mol kg(^{-1}) water(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>0.0088</td>
<td>3.47</td>
</tr>
<tr>
<td>37</td>
<td>0.0220</td>
<td>8.69</td>
</tr>
<tr>
<td>50</td>
<td>0.0423</td>
<td>1.67</td>
</tr>
<tr>
<td>75</td>
<td>0.130</td>
<td>5.14</td>
</tr>
<tr>
<td>99</td>
<td>0.390 ; 0.333(^b)</td>
<td>15.46; 13.19</td>
</tr>
</tbody>
</table>

\(^a\) Calculated by compiler
\(^b\) Calculated from the heat of dissolution (9,866 cal mol\(^{-1}\))

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfamethylthiazole was dissolved in water to form a satd soln which was occasionally agitated in a glass vessel immersed in a thermostat. The equilibrium was usually attained after 1 h. Five- to 100-cm³ samples of the satd soln were placed in Pt crucibles or dishes and evapd to dryness at temps lower than 110-115°C. The residue was dried to const wt at 105-110°C and weighed.

SOURCE AND PURITY OF MATERIALS:
Pure, recrystd sulfamethylthiazole was used. Its mp conformed to that reported in the literature. Purity of the water was not specified.

ESTIMATED ERROR:
Soly: quite reliable results were obtained over the temp range 20-75°C. At higher temps the accuracy was pure due to evapn of water during sampling (authors). Temp:±0.05°C (authors).

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)- (sulfamethylthiazole); 
C₁₀H₁₁N₃O₇S₂; [515-59-3]
(2) Phosphoric acid, disodium salt; 
Na₃H₂PO₄; [7558-94-4]
(3) Water; H₂O; [7732-18-5]

ORIGINL MEASUREMENTS:
Krüger-Thiemer, E. 

VARIABLES:
One temperature: ca 20°C; one pH: 8.74

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfamethylthiazole in a 0.705 M (10%) Na₃H₂PO₄ solution of pH 8.74, at room temperature (about 20°C), is 0.058 g% (2.15 x
10⁻³ mol dm⁻³ solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfamethylthiazole (0.5 g) was dissolved in 10 cm³ of the 0.705 M (10%) Na₃H₂PO₄ soln of pH 8.74, shaken for 2 h at room temp (about 20°C), and filtered. A 1-cm³ aliquot of the filtrate was withdrawn, cooled, acidified with 1 cm³ of 2N HCl, and the sulfonamide content was detd colorimetrically by the method of Marshall modified by Kimmig
(1) using an Authenrieth colorimeter. The pH was detd on an ultramicrograph using a glass electrode.

SOURCE AND PURITY OF MATERIALS:
Sulfamethylthiazole was the product manufd by Sanebo under the name Ultraseptyl. The source and purity of the remaining materials was not specified.

ESTIMATED ERROR:
Sol: precision ±5% (author)
Temp: not specified
pH : ±0.05 pH unit (author)

REFERENCES:
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINEAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-4-methyl-2-thiazolyl) - (sulfamethylthiazole); C_{10}H_{11}N_3O_2S_2; [515-59-3]</td>
<td>Krüger-Thiemer, E. Arch. Dermatol. Syphilis 1942, 183, 90-116.</td>
</tr>
<tr>
<td>(2) Phosphoric acid, monopotassium salt; KH$_2$PO$_4$; [7778-77-0]</td>
<td></td>
</tr>
<tr>
<td>(3) Water; H$_2$O; [7732-18-5]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: ca 20°C; one pH: 4.37</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility of sulfamethylthiazole in a 0.735 M (10%) KH$_2$PO$_4$ solution of pH 4.37, at room temperature (about 20°C), is 0.0094 g% (3.5 x 10$^{-4}$ mol dm$^{-3}$ solution, compiler).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AUXILIARY INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHOD/APARATUS/PROCEDURE:</td>
</tr>
<tr>
<td>Sulfamethylthiazole (0.5 g) was dissolved in 10 cm$^3$ of the 0.735 M (10%) KH$_2$PO$_4$ soln of pH 4.37, shaken for 2 h at room temp (about 20°C), and filtered. A 1-cm$^3$ aliquot of the filtrate was withdrawn, cooled, acidified with 1 cm$^3$ of 2N HCl, and the sulfonamide content was detd colorimetrically by the method of Marshall modified by Kimmig (1) using an Authenrieth colorimeter. The pH was detd on an ultraionograph using a glass electrode.</td>
</tr>
</tbody>
</table>

| SOURCE AND PURITY OF MATERIALS: |
| Sulfamethylthiazole was the product manufd by Sanebo under the name Ultraceptyl. The source and purity of the remaining materials was not specified. |

| ESTIMATED ERROR: |
| Soly: precision ±5% (author) |
| Temp: not specified |
| pH : ±0.05 pH unit (author) |

| REFERENCES: |
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl) (sulfameththiazole); C_{10}H_{11}N_{3}O_{2}S_{2}; [515-59-3]
(2) Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH_{2}PO_{4}; [7778-77-0]
(4) Water; H_{2}O; [7732-18-5]

VARIABLES: Temperature, pH

EXPERIMENTAL VALUES:
Composition of 1/15 M phosphate buffer solutions

<table>
<thead>
<tr>
<th>Na_{2}HPO_{4}</th>
<th>KH_{2}PO_{4}</th>
<th>%content</th>
<th>pH</th>
<th>10^{-3} \text{ mol dm}^{-3} \text{ solution}\text{a}</th>
<th>10^{-3} \text{ mol dm}^{-3} \text{ solution}\text{a}</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>99.0</td>
<td>0.91</td>
<td>4.944</td>
<td>0.021</td>
<td>0.780</td>
</tr>
<tr>
<td>10.0</td>
<td>90.0</td>
<td>0.91</td>
<td>5.906</td>
<td>0.021</td>
<td>0.780</td>
</tr>
<tr>
<td>61.1</td>
<td>38.9</td>
<td>0.93</td>
<td>7.005</td>
<td>0.022</td>
<td>0.817</td>
</tr>
<tr>
<td>9.5</td>
<td>0.5</td>
<td>0.733b</td>
<td>7.510</td>
<td>0.0178</td>
<td>0.661</td>
</tr>
<tr>
<td>94.7</td>
<td>5.3</td>
<td>0.95</td>
<td>8.018</td>
<td>0.042</td>
<td>1.559</td>
</tr>
</tbody>
</table>

Soly: precision ±5% (author)
Temp: not specified
pH: ±0.05 pH unit (author)

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)- (sulfamethylthiazole);
C_{10}H_{11}N_{3}O_{2}S; [515-59-3]
(2) 2-Propanone (acetone); C_{3}H_{6}O;
[67-64-1]

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>G^a</th>
<th>e^b</th>
<th>(x_{g}/l^c)</th>
<th>mol/1^d acetone</th>
<th>mmol/mol acetone</th>
<th>(1:x_{g}^e)</th>
<th>(1+x_{cc}^f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1.068</td>
<td>1.050</td>
<td>8.700</td>
<td>32.3</td>
<td>2.30</td>
<td>93.63</td>
<td>114.90</td>
</tr>
<tr>
<td>5</td>
<td>1.125</td>
<td>1.112</td>
<td>9.099</td>
<td>33.7</td>
<td>2.42</td>
<td>88.88</td>
<td>109.90</td>
</tr>
<tr>
<td>10</td>
<td>1.410</td>
<td>1.361</td>
<td>11.322</td>
<td>42.0</td>
<td>3.04</td>
<td>70.92</td>
<td>88.32</td>
</tr>
<tr>
<td>15</td>
<td>1.504</td>
<td>1.482</td>
<td>11.988</td>
<td>44.5</td>
<td>3.24</td>
<td>66.49</td>
<td>83.35</td>
</tr>
<tr>
<td>20</td>
<td>1.677</td>
<td>1.649</td>
<td>13.268</td>
<td>49.3</td>
<td>3.64</td>
<td>59.63</td>
<td>75.37</td>
</tr>
<tr>
<td>25</td>
<td>1.813</td>
<td>1.783</td>
<td>14.236</td>
<td>52.9</td>
<td>3.93</td>
<td>55.16</td>
<td>70.24</td>
</tr>
<tr>
<td>30</td>
<td>2.152</td>
<td>2.107</td>
<td>16.771</td>
<td>62.1</td>
<td>4.64</td>
<td>46.47</td>
<td>60.44</td>
</tr>
<tr>
<td>35</td>
<td>2.505</td>
<td>2.445</td>
<td>19.371</td>
<td>71.9</td>
<td>5.40</td>
<td>39.92</td>
<td>51.62</td>
</tr>
<tr>
<td>40</td>
<td>2.903</td>
<td>2.822</td>
<td>22.278</td>
<td>82.7</td>
<td>6.26</td>
<td>34.44</td>
<td>44.84</td>
</tr>
<tr>
<td>45</td>
<td>3.513</td>
<td>3.394</td>
<td>26.798</td>
<td>99.5</td>
<td>7.57</td>
<td>28.46</td>
<td>37.32</td>
</tr>
<tr>
<td>50</td>
<td>4.524</td>
<td>4.328</td>
<td>34.179</td>
<td>126.9</td>
<td>9.76</td>
<td>23.10</td>
<td>29.25</td>
</tr>
</tbody>
</table>

\[a^G = \frac{p}{P - p} \times 100\], where p and P are the weights of solute and solution, resp.

\[b^E = \frac{G}{G + 100}\]; \(c_g/l\ acetone\); \(d\) should be mmol/l acetone (compiler);

\(e^g\) of acetone required to dissolve 1 g of solute; \(f\) volume (cm\(^3\)) of acetone required to dissolve 1 g of solute.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A special all-glass app was constructed enabling the prepn of satd solns, agitation by bubbling a stream of acetone-satd N, filtration, and distn off the solvent without contact with air. Two exchangeable dissoln vessels of 15 and 8 cm\(^3\) working capacity were used depending on the soly of solute. The app was immersed in a thermostat. The vols of acetone used were 15 or 5 cm\(^3\), and the equilibration time was 2-2.5 h. The satd solns were filtered, weighed, the solvent was distd off, the residues were dried at 105°C, weighed, and examd for the presence of solvated acetone.

SOURCE AND PURITY OF MATERIALS:
The source of the materials was not specified. Pure, anhyd acetone was used. The absence of impurities and water was confirmed by procedures of the German Pharmacopeia VI and Spanish Pharmacopeia VIII. The purity of sulfamethylthiazole was not specified.

ESTIMATED ERROR:
Soly: measurements were repeated until 2 values not differing in the second decimal were obtained (author).
Temp: ±0.1°C (author).

REFERENCES:
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>EVALUATOR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Acetamide, N-[4-[[[(4-methyl)-2-thiazolylamino]sulfonyl]phenyl]- (acetyl sulfamethy1thiazole); C&lt;sub&gt;12&lt;/sub&gt;H&lt;sub&gt;13&lt;/sub&gt;N&lt;sub&gt;3&lt;/sub&gt;O&lt;sub&gt;3&lt;/sub&gt;S&lt;sub&gt;2&lt;/sub&gt;; [71119-13-6]</td>
<td>Anthony N. Paruta</td>
</tr>
<tr>
<td>2. Water</td>
<td>Department of Pharmaceutics</td>
</tr>
<tr>
<td></td>
<td>University of Rhode Island</td>
</tr>
<tr>
<td></td>
<td>Kingston, Rhode Island, USA</td>
</tr>
<tr>
<td></td>
<td>and</td>
</tr>
<tr>
<td></td>
<td>Ryszard Piekos</td>
</tr>
<tr>
<td></td>
<td>Faculty of Pharmacy, University of Gdansk</td>
</tr>
<tr>
<td></td>
<td>Gdansk, Poland 1986</td>
</tr>
</tbody>
</table>

CRITICAL EVALUATION:

For this compound, the acetyl derivative of the previously evaluated sulfanamide, two values were available (1,2) in water at 310K. Roblin et al. (1) give a value of \(1.8 \times 10^{-4}\) mol dm\(^{-3}\), and Durel and Allinne (2) \(2 \times 10^{-4}\) mol dm\(^{-3}\). Both groups used quite adequate equilibrium times, though Durel and Allinne (2) do not specify the analytical technique. The similarity of the two values is considered to be evidence of accuracy and an average value of \(1.9 \times 10^{-4}\) mol dm\(^{-3}\) is the recommended value in water at 310K. It is interesting to note that the acetyl-derivative possesses a solubility of about one fifth (20%) of the parent compound, sulfamethy1thiazole. This is usually the case, decreasing solubility for acetyl-derivative compounds.

REFERENCES:

**COMPONENTS:**

(1) Acetamide, N-[4-[[4-(4-methyl)-2-thiazolylamino]sulfonyl]phenyl]- (acetyl sulfamethylthiazole); C₁₂H₁₃N₃O₃S₂; [71119-13-6]

(2) Water; H₂O; [7732-18-5]

**ORIGIINAL MEASUREMENTS:**


**VARIABLES:**

One temperature: 37°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of acetyl sulfamethylthiazole in water at 37°C is 5.5 mg/100 cm³ solution (1.8 x 10⁻⁴ mol dm⁻³, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

Excess acetyl sulfamethylthiazole in water was heated and stirred on a steam bath for 30 min. The suspension was then agitated for 24 h in a thermostat at 37°C. A sample of the satd soln was withdrawn through a glass filter, diluted, and analyzed by the Marshall method (1) using a General Electric spectrophotometer for comparing the colors developed with those of the standards.

**SOURCE AND PURITY OF MATERIALS:**

Acetyl sulfamethylthiazole was prepd by treating 2 moles of 2-amino-4-methylthiazole with 1 mole of acetylsulfanilyl chloride in an AcOEt or dioxane soln. Purity of the water was not specified.

**ESTIMATED ERROR:**

Nothing specified

**REFERENCES:**

COMPONENTS:
(1) Acetamide, N-[4-[[[4-methyl-2-thiazolyl]amino]sulfonyl]phenyl]-
(acetyl sulfamethylthiazole);
$C_{12}H_{13}N_3O_3S_2$; [71119-13-6]
(2) Water; $H_2O$; [7732-18-5]

ORIGINAL MEASUREMENTS:
Durel, M.P.; Allinne, M.

VARIABLES:
One temperature: 37°C

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

Solubility of acetyl sulfamethylthiazole in water at 37°C is
0.07 g/liter ($2 \times 10^{-4}$ mol dm$^{-3}$), compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A mixt of acetyl sulfamethylthiazole and
water was agitated for 24 hours at 37°C.

SOURCE AND PURITY OF MATERIALS:
Source and purity of acetyl sulfamethyl-
thiazole was not specified.
Distilled water was used.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
COMPONENTS: ORIGINAL MEASUREMENTS:

(1) Acetamide, N-[4-[[4-(methyl-2-thiazolylamino)sulfonyl]phenyl]- (acetyl sulfamethylthiazole); C_{12}H_{13}N_{3}O_{3}S_{2}; [71119-13-6]

(2) Water; H_{2}O; [7732-18-5]

VARIABLES:

Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>°C</th>
<th>Solubility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weight%</td>
</tr>
<tr>
<td>20</td>
<td>0.0022</td>
</tr>
<tr>
<td>50</td>
<td>0.0080; 0.0100(^b)</td>
</tr>
<tr>
<td>75</td>
<td>0.0350</td>
</tr>
<tr>
<td>99</td>
<td>0.0860(^b)</td>
</tr>
</tbody>
</table>

\(^a\) Calculated by compiler
\(^b\) Calculated from the heat of dissolution

(10,548 cal mol\(^{-1}\)).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Acetyl sulfamethylthiazole was dissolved in water to form a satd soln which was occasionally agitated in a glass vessel immersed in a thermostat. The equilibrium was usually attained after 1 h. Five- to 100-cm\(^3\) samples of the satd soln were placed in Pt crucibles or dishes and evapd to dryness at temps lower than 110-115°C. The residue was dried to const wt at 105-110°C and weighed.

SOURCE AND PURITY OF MATERIALS:

Pure, recrystd acetyl sulfamethylthiazole was used. Its mp conformed to that reported in the literature.

Purity of the water was not specified.

ESTIMATED ERROR:

Sol: quite reliable results were obtained over the temp range 20-75°C. At higher temps the accuracy was poor due to evapn of water during sampling (authors).

Temp: ±0.05°C (authors).

REFERENCES:
**COMPONENTS:**

(1) Acetamide, \( N\-\{4-[[4\-methyl-2\-thiazolyl\-amino]sulfonyl]\)phenyl\)- (acetyl sulfamethylthiazole); \( C_{12}H_{13}N_{3}O_{3}S_{2} \); [71119-13-6]

(2) Phosphoric acid, disodium salt; \( Na_{2}HPO_{4} \); [7558-94-4]

(3) Water; \( H_{2}O \); [7732-18-5]

**ORIGINAL MEASUREMENTS:**

Krüger-Thiemer, E.

**VARIABLES:**

One temperature: ca 20°C; one pH: 8.74

**EXPERIMENTAL VALUES:**

Solubility of acetyl sulfamethylthiazole in a 0.705 M (10%) \( Na_{2}HPO_{4} \) solution of pH 8.74 at room temperature (about 20°C) is 0.052 g% (1.67 \( \times \) \( 10^{-3} \) mol dm\(^{-3} \) solution, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPROATUS/PROCEDURE:**

Acetyl sulfamethylthiazole (0.5 g) was dissolved in 10 cm\(^{3} \) of the 0.705 M (10%) \( Na_{2}HPO_{4} \) soln, shaken for 2 h at room temp (about 20°C), and filtered. The filtrate was treated with equal vol of 2N HCl and refluxed for 15 min. After proper diln, a 1-cm\(^{3} \) aliquot was withdrawn, acidified, cooled, and the sulfonamide content was detd colorimetrically (as sulfamethylthiazole) by the Marshall method modified by Kimmig (1) using an Autenrieth colorimeter. The pH was detd on an ultrasonograph using a glass electrode.

**SOURCE AND PURITY OF MATERIALS:**

Acetyl sulfamethylthiazole (source not specified) gave no coloration upon diazotization of its satd soln, thus showing absence of sulfamethylthiazole. The source and purity of the remaining materials was not specified.

**ESTIMATED ERROR:**

Soln: precision ±5% (author)
Temp: not specified
pH: ±0.05 pH unit (author)

**REFERENCES:**

COMPONENTS:
(1) Acetamide, N-[4-[(4-methyl-2-thiazolyl)-amino]sulfonyl]phenyl]- (acetyl sulfamethethylthiazole); C₁₂H₁₃N₃O₃S₂; [71119-13-6]
(2) Phosphoric acid, monopotassium salt; KH₂PO₄; [7778-77-0]
(3) Water; H₂O; [7732-18-5]

VARIABLES:
One temperature: ca 20°C; one pH: 4.37

EXPERIMENTAL VALUES:

Solubility of acetyl sulfamethethylthiazole in a 0.735 M (10%) KH₂PO₄ solution of pH 4.37 at room temperature (about 20°C) is 0.0039 g%
(1.25 x 10⁻⁴ mol dm⁻³, compiler).

AUXILIARY INFORMATION

METHOD/APPROATUS/PROCEDURE:
Acetyl sulfamethethylthiazole (0.5 g) was dissolved in 10 cm³ of the 0.735 M (10%) KH₂PO₄ soln, shaken for 2 h at room temp (about 20°C), and filtered. The filtrate was treated with equal vol of 2N HCl and refluxed for 15 min. After proper diln, a 1-cm³ aliquot was withdrawn, acidified, cooled, and the sulfonamide content was detd colorimetrically (as sulfamethethylthiazole) by the Marshall method modified by Kimmig (1) using an Autenrieth colorimeter. The pH was detd on an ultraionograph using a glass electrode.

SOURCE AND PURITY OF MATERIALS:
Acetyl sulfamethethylthiazole (source not specified) gave no coloration upon diazotization of its satd soln, thus showing absence of sulfamethethylthiazole. The source and purity of the remaining materials was not specified.

ESTIMATED ERROR:
Soly: precision ±5% (author)
Temp: not specified
pH: ±0.05 pH unit (author)

REFERENCES:
COMPONENTS:
(1) Acetamide, N-[4-[(4-methyl-2-thiazoly]-amino]sulfonyl]phenyl]- (acetetyl sulfamethylthiazole); C$_{12}$H$_{13}$N$_{3}$O$_{3}$S$_{2}$; [71119-13-6]
(2) Phosphoric acid, disodium salt; Na$_2$HPO$_4$; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH$_2$PO$_4$; [7778-77-0]
(4) Water; H$_2$O; [7732-18-5]

VARIABLES:
Temperature; pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Na$_2$HPO$_4$</th>
<th>KH$_2$PO$_4$</th>
<th>%content</th>
<th>pH</th>
<th>g%</th>
<th>$10^4$ mol dm$^{-3}$ solution</th>
<th>g%</th>
<th>$10^4$ mol dm$^{-3}$ solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>99.0</td>
<td>0.91</td>
<td>4.944</td>
<td>0.0069</td>
<td>2.215</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10.0</td>
<td>90.0</td>
<td>0.91</td>
<td>5.906</td>
<td>0.0070</td>
<td>2.248</td>
<td>0.0092</td>
<td>2.954</td>
</tr>
<tr>
<td>61.0</td>
<td>38.9</td>
<td>0.93</td>
<td>7.005</td>
<td>0.0078</td>
<td>2.505</td>
<td>0.0188</td>
<td>6.037</td>
</tr>
<tr>
<td>9.5</td>
<td>0.5</td>
<td>0.733$^b$</td>
<td>7.510</td>
<td>0.0097</td>
<td>3.115</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>94.7</td>
<td>5.3</td>
<td>0.95</td>
<td>8.018</td>
<td>0.0199</td>
<td>6.391</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

$^a$Calculated by compiler
$^b$Molar content; 10% buffer solution

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Acetel sulfamethylthiazole (0.5 g) was dissolved in 10 cm$^3$ of a buffer soln, shaken for 2 h at 20°C (or left for 48 h at 37°C), and filtered at respective temp. The filtrate was treated with equal vol of 2N HCl and refluxed for 15 min. After proper diln, a 1-cm$^3$ aliquot was withdrawn, acidified, cooled, and the sulfonamide content was detd colorimetrically (as sulfamethylthiazole) by the Marshall method modified by Kimmig (1) using an Authentrieth colorimeter. The pH was detd on an ultrionograph using a glass electrode.

SOURCE AND PURITY OF MATERIALS:
Acetel sulfamethylthiazole (source not specified) gave no coloration upon diazotiza­tion of its satd soln, thus showing absence of sulfamethylthiazole. The source and purity of the remaining materials were not specified.

ESTIMATED ERROR:
Soly: precision ±5% (author)
Temp: not specified
pH: ±0.05 pH unit (author)

REFERENCES:
**COMPONENTS:**

(1) Benzenesulfonamide, 4-amino-N-(3-methyl-2,3-dihydro-2-thiazolyl)-; 
\[C_{10}H_{11}N_3O_2S_2; \ [51203-20-4]\] 1942.

(2) Water; \(H_2O; \ [7732-18-5]\)

**ORIGINAL MEASUREMENTS:**


**VARIABLES:**

One temperature: \(37 ^\circ C\)

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of 4-amino-N-(3-methyl-2,3-dihydro-2-thiazolyl) benzenesulfonamide in water at \(37 ^\circ C\) is 22 mg\% (\(8.2 \times 10^{-4}\) mol dm\(^{-3}\)

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

The sulfonamide was assayed colorimetrically (1). No details were given.

**SOURCE AND PURITY OF MATERIALS:**

The sulfonamide, mp 250-1\(^\circ\)C, was synthesized by the authors. Analysis: %C 44.49 (calcd 44.60); %H 4.13 (4.12); %N 15.54 (15.60). Colorimetric factor: 0.656 (calcd 0.639).

Purity of the water was not specified.

**ESTIMATED ERROR:**

Nothing specified

**REFERENCES:**

COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(3-methyl-2,3-dihydro-2-thiaryl)-; C_{10}H_{11}N_3O_2S_2; [51203-20-4]
(2) Water; H_2O; [7732-18-5]

ORIGINAL MEASUREMENTS:

VARIABLES:
One temperature: 37°C

EXPERIMENTAL VALUES:

Solubility of 4-amino-N-(3-methyl-2,3-dihydro-2-thiazolyl)benzene-sulfonamide in water at 37°C is 0.569 mmol dm^{-3} solution.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The sulfonamide was assayed by diazotization. No details were given.

SOURCE AND PURITY OF MATERIALS:
The sulfonamide was synthesized by the authors. Its purity was not specified. Deionized water was used.

ESTIMATED ERROR:
Soly: not specified.
Temp: ±1°C (authors).

REFERENCES:
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-(3-methyl-2,3-dihydro-2-thiazolyl)-
   \( \text{C}_{10}\text{H}_{11}\text{N}_{3}\text{O}_{2}\text{S}_{2} \); [51203-20-4]
2. Methane-, trichloro-; \( \text{CHCl}_{3} \); [67-66-3]

**VARIABLES:**

*One temperature: 37°C*

**EXPERIMENTAL VALUES:**

Solubility of 4-amino-N-(3-methyl-2,3-dihydro-2-thiazolyl)benzenesulfonamide in \( \text{CHCl}_{3} \) at 37°C is 3.15 mmol dm\(^{-3}\) solution.

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

One ml of the sulfonamide soln in \( \text{CHCl}_{3} \) at equilibrium was taken into a test tube. After evapn of the solvent, the residue was dissolved in 1N HCl, the soln was properly dild with dionized water and the concn of the sulfonamide was detd by diazotization.

**SOURCE AND PURITY OF MATERIALS:**

The sulfonamide was synthesized by the authors. Its purity was not specified. Neither source nor purity of the \( \text{CHCl}_{3} \) was specified.

**ESTIMATED ERROR:**

Soly: not specified.

Temp: ±1°C (authors).

**REFERENCES:**

<table>
<thead>
<tr>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>R. Piekos</td>
</tr>
</tbody>
</table>
COMPONENTS:
1) Benzenesulfonamide, 4-amino-N-2-[3-(2-hydroxyethyl)-2,3-dihydro-2-thiazolyl]-; C_{11}H_{15}N_{3}O_{3}S_{2}; [71119-27-2]
2) Water; H\textsubscript{2}O; [7732-18-5]

VARIABLES:
One temperature: 37°C

EXPERIMENTAL VALUES:

Solubility of 4-amino-N-2-[3-(2-hydroxyethyl)-2,3-dihydro-2-thiazolyl]-benzenesulfonamide in water at 37°C is 169 mg% (5.96 \times 10^{-3} \text{ mol dm}^{-3} solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The sulfonamide was assayed colorimetrically (1). No details were given.

SOURCE AND PURITY OF MATERIALS:
The sulfonamide, mp 159-60°C, was synthesized by the authors. Analysis: %C 44.42 (calcd 44.13); %H 4.35 (4.38); %N 14.36 (14.04). Colorimetric factor: 0.600 (calcd 0.575).
Purity of the water was not specified.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
   J. Biol. Chem. 1939, 128, 537.
## COMPONENTS:

1. Benznesulfonamide, 4-amino-N-2-benzothiazolyl-; \( \text{C}_{13}\text{H}_{11}\text{N}_{3}\text{O}_{2}\text{S}_{2} \); [6138-01-8]

2. Water; \( \text{H}_{2}\text{O} \); [7732-18-5]

## ORIGINAL MEASUREMENTS:

Roblin, R. O., Jr.; Williams, J. H.; Winnek, P. S.; English, J. P.


## VARIABLES:

One temperature: 37°C

## PREPARED BY:

R. Piekos

## EXPERIMENTAL VALUES:

Solubility of 4-amino-N-2-benzothiazolylbenzenesulfonamide in water at 37°C is 0.1 mg/100 cm³ solution (3 x 10⁻⁶ mol dm⁻³, compiler).

## METHOD/APPARATUS/PROCEDURE:

Excess sulfonamide in water was heated and stirred on a steam bath for 30 min. The suspension was then agitated for 24 h in a thermostat at 37°C. A sample of the satd soln was withdrawn through a glass filter, diluted, and analyzed by the Marshall method (1) using a General Electric recording spectrophotometer for comparing the colors developed with those of the standards.

## SOURCE AND PURITY OF MATERIALS:

The sulfonamide, mp 304-5°C (cor. dec) was prepd by the authors. Anal: %C 38.2 (calcld 37.5); %H 2.9 (3.1); %N 21.0 (21.8). Purity of the water was not specified.

## ESTIMATED ERROR:

Nothing specified.

## REFERENCES:


   *J. Pharmaco1*. 1939, 66, 4.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-4-[4-(4-biphenylyl)-2-thiazolyl]--; C_{21}H_{17}N_{3}O_{2}S_{2}; [71119-15-8]
(2) Water; H_{2}O; [7732-18-5]

VARIABLES:
One temperature: 37°C

EXPERIMENTAL VALUES:

Solubility of 4-amino-N-4-[4-(4-biphenylyl)-2-thiazolyl]benzenesulfonamide in water at 37°C is 0.1 mg/100 cm³ solution (2 x 10^{-6} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Excess sulfonamide in water was heated and stirred on a steam bath for 30 min. The suspension was then agitated for 24 h in a thermostat at 37°C. A sample of the satd soln was withdrawn through a glass filter, dild, and analyzed by the Marshall method (1) using a General Electric recording spectrophotometer for comparing the colors developed with those of the standards.

SOURCE AND PURITY OF MATERIALS:
The sulfonamide was prepd by the authors. Mp 304-5°C (cor, dec). Anal: %C 51.1 (calcd 51.1); %H 3.9 (3.6); %N 13.6 (13.8). Purity of the water was not specified.

ESTIMATED ERROR:
Nothing specified

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(4-methoxy-1,2,5-thiadiazol-3-yl); (sulfametrole); C9H10N4O3S2; [32909-92-5]
(2) Phosphoric acid, disodium salt; Na2HPO4; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH2PO4; [7778-77-0]
(4) Water; H2O; [7732-18-5]

VARIABLES: pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility at 25°C</th>
<th>10^3 mol dm^-3</th>
<th>a</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5</td>
<td>460</td>
<td>1.61</td>
<td></td>
</tr>
<tr>
<td>7.5</td>
<td>1700</td>
<td>5.94</td>
<td></td>
</tr>
</tbody>
</table>

aCalculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Satd solns of sulfametrole were prep'd in phosphate buffers of pH 5.5 and 7.5 at room temp (25°C). The concn of the solute was measured by means of a Spectra Physics 3500B high-performance liquid chromatograph equipped with a column oven (Model 748) and a Pye-Unicam LC-UV spectrophotometric detector. The detector was connected to a 1-mV recorder. A stainless steel column (10 cm x 4.6 mm i.d.) was packed with Lichrosorb RPS, 5 μm, obtained from Chrompack. An injection loop of 100 μl was used. The oven temp was 40°C. Detection of sulfametrole was performed at 260 nm.

SOURCE AND PURITY OF MATERIALS:
Sulfametrole was obtained from Warrick Nederland. The compd was 100% pure according to the HPLC chromatogram. The source and purity of the remaining materials were not specified.

ESTIMATED ERROR:
The detection limit of the solute by HPLC was 0.5 mg/l (authors). The error in temperature and pH were not specified.

REFERENCES:
COMPONENTS:
(1) Acetamide, \(N\)\-\(\{(4\text{-}aminophenyl)\text{sulfonyl}\}\)\-\(N\)\-\(\{(4\text{-}methoxy}\text{-}1,2,5\text{-}thiadiazol}\)\-3\text{-}yl)\-\(N\)\-acetylsulfametrole \(C_{11}H_{12}N_{4}O_{4}S_{2}\); [84930-17-6]
(2) Phosphoric acid, disodium salt; \(Na_{2}HPO_{4}\); [7558-94-4]
(3) Phosphoric acid, monopotassium salt; \(KH_{2}P0_{4}\); [7778-77-0]
(4) Water; \(H_{2}O\); [7732-18-5]

VARIABLES: \(pH\)

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>(\text{pH})</th>
<th>(\text{Solubility at } 25^\circ C)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(\text{mg/l} \times 10^b \text{ mol dm}^{-3})</td>
</tr>
<tr>
<td>5.5</td>
<td>34 (1.00)</td>
</tr>
<tr>
<td>7.5(^b)</td>
<td>24 (0.73)</td>
</tr>
</tbody>
</table>

\(^a\)Calculated by compiler.

\(^b\)Erroneous \(\text{pH}\) value of 7.0 is given in the article.

AUXILIARY INFORMATION

METHOD/APPROATUS/PROCEDURE:
The earlier developed method (1) was used (personal communication). Satd solns of \(N\)\-acetylsulfametrole were prepd in phosphate buffers of \(\text{pH} 5.5\) and 7.5 at \(25^\circ C\). The concn of the solute was measured by means of a Spectra Physics 3500B high-performance liquid chromatograph equipped with a Model 748 column oven and a Pye-Unicam LC-UV spectrophotometric detector.

ORIGINAL MEASUREMENTS:
Hekster, Ch. A.; Vree, T. B.

PREPARED BY:
R. Piekos

SOURCE AND PURITY OF MATERIALS:
Neither source nor the purity of the materials was specified.

ESTIMATED ERROR:
Soly: the detection limit of the solute by HPLC was 0.5 mg/l (authors).
Errors in temp. and \(\text{pH}\) were not specified.

REFERENCES:
1. Hekster, Y. A.; Vree, T. B.; Dansma, J. E.; Friesen, W. T.
COMPONENTS:
(1) Acetamide, N-[4-[[4-(methoxy-1,2,5-thiadiazol-3-yl)amino]sulfonyle]phenyl]- (N'-acetylsulfametrole); C_{11}H_{12}N_{4}O_{4}S_{2}; [79662-97-3]
(2) Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH_{2}PO_{4}; [7778-77-0]
(4) Water; H_{2}O; [7732-18-5]

VARIABLES:

\[ \text{pH} \]

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility at 25°C (mg/l)</th>
<th>10^3 mol dm^{-3} a</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5</td>
<td>1100</td>
<td>3.350</td>
</tr>
<tr>
<td>7.5</td>
<td>6000</td>
<td>18.273</td>
</tr>
</tbody>
</table>

\[ ^{a}\text{Calculated by compiler} \]

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Satd solns of \( N' \)-acetylsulfametrole were prep'd in phosphate buffers of pH 5.5 and 7.5 at room temp (25°C). The concn of the solute was measured by means of a Spectra Physics 3500B high-performance liquid chromatograph equipped with a column oven (Model 748) and a Pye-Unicam LC-UV spectrophotometric detector. The detector was connected to a 1-mV recorder. A stainless steel column (10 cm x 4.6 mm i.d.) was packed with Lichrosorb RPS, 5 µm, obtained from Chrompack. An injection loop of 100 µl was used. The oven temp was 40°C. Detection of the solute was performed at 260 nm.

SOURCE AND PURITY OF MATERIALS:
\( N' \)-acetylsulfametrole was obtained from Chemie, Linz. The compd was 100% pure according to the HPLC chromatogram. The source and purity of the remaining materials were not specified.

ESTIMATED ERROR:
The detection limit of the solute by HPLC was 0.5 mg/l (authors). The error in temperature and pH were not specified.

REFERENCES:
COMPONENTS:

1) Acetamide, N-[4-(acetylamino)phenyl]-
sulfonyl]-N-(4-methoxy-1,2,5-thiadiazol-
3-yl)-(N¹, N⁴-diacetylsulfametrole);
C₁₃H₁₄N₄O₅S₂; [84930-18-7]

2) Phosphoric acid, disodium salt;
Na₂H₂PO₄; [7558-94-4]

3) Phosphoric acid, monopotassium salt;
KH₂PO₄; [7778-77-0]

4) Water; H₂O; [7732-18-5]

VARIABLES:

pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility at 25°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg/l</td>
</tr>
<tr>
<td>5.5</td>
<td>22.7</td>
</tr>
<tr>
<td>7.5b</td>
<td>20.5</td>
</tr>
</tbody>
</table>

a Calculated by compiler.

b Erroneous pH value of 7.0 is given in the article.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The earlier developed method (1) was used (personal communication). Satd solns of N¹,
N⁴-diacetylsulfametrole were prepd in phos-
phate buffers of pH 5.5 and 7.5 at 25°C. The
concn of the solute was measured by means of
a Spectra Physics 3500B high-performance
liquid chromatograph equipped with a Model
748 column oven and a Pye-Unicam LC-UV spec-
trophotometric detector.

SOURCE AND PURITY OF MATERIALS:

Neither source nor the purity of the materials was specified.

ESTIMATED ERROR:

Soly: the detection limit of the solute by HPLC was 0.5 mg/l (authors).
The errors in temp and pH were not specified.

REFERENCES:

1. Hekster, Y.A.; Vree, T. B.;
   Damsma, J.E.; Friesen, W. T.
   J. Antimicrob. Chemother. 1981,
   8, 133.
**COMPONENTS:**

(1) Benzensulfonamide, 4-amino-N-1,3,4-thiadiazol-2-yl-; C₂H₈N₄O₂S₂; [16806-29-4] Roblin, R.O., Jr.; Williams, J. H.; Winnek, P. S.; English, J. P.

(2) Water; H₂O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**

Roblin, R.O., Jr.; Williams, J. H.; Winnek, P. S.; English, J. P.


**VARIABLES:**

One temperature: 37°C

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of 4-amino-N-1,3,4-thiadiazol-2-ylbenzenesulfonamide in water at 37°C is 73 mg/100 cm³ solution (2.85 x 10⁻³ mol dm⁻³, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

Excess sulfonamide in water was heated and stirred on a steam bath for 30 min. The suspension was then agitated for 24 h in a thermostat at 37°C. A sample of the satd soln was withdrawn through a glass filter, dried, and analyzed by the Marshall method (1) using a General Electric recording spectrophotometer for comparing the colors developed with those of the standards.

**SOURCE AND PURITY OF MATERIALS:**

The sulfonamide, mp 216-180°C (dec, cor), was prepd by the authors. Anal: %C 38.1 (calcd 37.5); %H 2.9 (3.1); %N 21.0 (21.8).

Purity of the water was not specified.

**ESTIMATED ERROR:**

Nothing specified.

**REFERENCES:**


   *J. Pharmacol* 1939, 68, 4.
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)–
    (sulfamethylthiadiazole);
    \( \text{C}_9\text{H}_7\text{ON}_4\text{O}_2\text{S}_2; [144-82-1] \)
(2) Water

CRITICAL EVALUATION:

At 310K, three values were available (1-3) for the aqueous solubility of this compound: Durel and Allinne (1) reported a value of \( 3.25 \times 10^{-3} \text{ mol dm}^{-3} \). Kaneniwa and Watari (2) gave a value of \( 3.27 \times 10^{-3} \text{ mol dm}^{-3} \), a value of \( 3.27 \times 10^{-3} \text{ mol dm}^{-3} \) in 1978 (3) and in 1980 (4) with Hanano a value of \( 3.27 \times 10^{-3} \text{ mol dm}^{-3} \) was given. Since all these values were produced by the same workers (2-4) using identical methodologies, the value given was only considered once. The simple average of the two values (1) and (2-4) were taken and a recommended value of \( 3.26 \times 10^{-3} \text{ mol dm}^{-3} \) is given in water at 310K.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)- (sulfamethylthiadiazole); C₉H₁₀N₄O₂S₂; [144-82-1]

(2) Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Durel, M. P.; Allinne, M.
1941, 261-8.

VARIABLES:

One temperature: 37°C

EXPERIMENTAL VALUES:

Solubility of sulfamethylthiadiazole in water at 37°C is 0.88 g/liter
(3.25 x 10⁻³ mol dm⁻³, compiler).

PREPARED BY:
R. Piekos

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A mixt of sulfamethylthiadiazole and water was agitated for 24 hours at 37°C.

SOURCE AND PURITY OF MATERIALS:
Source and purity of sulfamethylthiadiazole were not specified.
Distilled water was used.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)- (sulfamethizole); C$_9$H$_{10}$N$_4$O$_2$S$_2$; [144-82-1]
(2) Water; H$_2$O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Watari, N.; Kaneniwa, N.

VARIABLES:
One temperature: 37°C

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

Total solubility of sulfamethizole in water at 37°C is 0.884 mg/ml solution (3.27 x 10$^{-3}$ mol dm$^{-3}$, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An excess of sulfamethizole, required to saturate water, was placed in a flask contg 25 ml of water. The flask was shaken (2 strokes/s) at the amplitude of 3 cm in a thermostatically controlled water bath at 37°C. One-ml sample was removed every 6 h (total equilibration period 3-5 days) using a warmed Millipore filter syringe with a filter pore size of 0.45 μ (Millipore HAWP 01300) and the filtrate was dild with water and assayed spectrophotometrically (1).

SOURCE AND PURITY OF MATERIALS:
Commercial sulfamethizole of the Japanese Pharmacopeia grade and distd water were used.

ESTIMATED ERROR:
Soly: not specified
Temp: ±0.05°C (authors).

REFERENCES:
1. Kaneniwa, N.; Watari, N.
### COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-(sulfamethizole); 
   \( \text{C}_{9}\text{H}_{10}\text{N}_{4}\text{O}_{2}\text{S}_{2}; \ [144-82-1] \)

2. Water; \( \text{H}_2\text{O}; \ [7732-18-5] \)

### VARIABLES:

- One temperature: 37°C

### EXPERIMENTAL VALUES:

Solubility of sulfamethizole in water at 37°C is 0.884 mg/ml solution 
\( (3.27 \times 10^{-3} \text{ mol dm}^{-3}, \text{compiler}). \)

### SOURCE AND PURITY OF MATERIALS:

Commercial sulfamethizole of the Japanese Pharmacopeia grade and distd water were used.

### REFERENCES:

1. Kaneniwa, N.; Watari, N. 
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-(sulfamethizole); C₉H₁₀N₄O₂S₂; [144-82-1]</td>
<td>Watari, N.; Kaneniwa, N.; Hanano, M. <em>Int. J. Pharm.</em> 1980, 6(2), 155-66.</td>
</tr>
<tr>
<td>(2) Water; H₂O; [7732-18-5]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 37°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

**EXPERIMENTAL VALUES:**

Solubility of sulfamethizole in water at 37°C is 88.4 mg/100 ml

(3.27 x 10⁻³ mol dm⁻³, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
The earlier developed method was employed (1), whereby an excess of sulfamethizole, required to saturate medium, was placed in a flask contg 25 ml of water. The flask was shaken (2 strokes/s) at an amplitude of 3 cm, in a thermostatically controlled bath. One ml sample was removed every 6 h (total equilibration time was 3-5 days) using a warmed Millipore filter syringe with a filter pore size pf 0.45 μ (Millipore HAWP 01300) and the filtrate was diluted with water and assayed spectrophotometrically.

**SOURCE AND PURITY OF MATERIALS:**
Sulfamethizole was of the Japanese Pharmacopeia grade.
Distilled water was used.

**ESTIMATED ERROR:**
Soly: not specified.
Temp: ±0.05°C (authors).

**REFERENCES:**
**COMPONENTS:**

(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-(sulfamethizole); C<sub>9</sub>H<sub>10</sub>N<sub>4</sub>O<sub>2</sub>S<sub>2</sub>; [144-82-1]

(2) Water; H<sub>2</sub>O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**

Goto, S.; Komatsu, M.; Tagawa, K.; Kawata, M.

**VARIABLES:**

Temperature

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

<table>
<thead>
<tr>
<th>t/°C</th>
<th>Solubility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>g/l</td>
</tr>
<tr>
<td>37</td>
<td>0.87</td>
</tr>
<tr>
<td>55</td>
<td>2.10</td>
</tr>
</tbody>
</table>

* a Calculated by compiler

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

A 3 g sample of sulfamethizole powder was accurately weighed into a 20-ml ampul and 10 ml of water was added. The ampul was sealed, placed in a const temp (37° or 55° C) bath and allowed to stand for several days. The equilibrium concn of the solute was measured spectrophotometrically at 542 nm after diazotization with the 0.1% Tsuda reagent (1).

**SOURCE AND PURITY OF MATERIALS:**

Sulfamethizole had mp 207-11°C.
The purity of water was not specified.

**ESTIMATED ERROR:**

Nothing specified.

**REFERENCES:**

1. Tsuda, K.; Matsunaga, S.
   *Yakugaku Zasshi* 1942, 62, 362.
COMPONENTS:

(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-(sulfamethizole); C9H10N4O2S2; [144-82-1]
(2) Hydrochloric acid; HCl; [7647-01-0]
(3) Water; H2O; [7732-18-5]

ORIGINAL MEASUREMENTS:

Ogata, H.; Shibazaki, T.; Inoue, T.; Ejima, A.

VARIABLES:

One temperature: 37°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfamethizole in 0.1N HCl at 37°C is 9.172 mg/ml
(3.393 x 10^-2 mol dm^-3, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A centrifuge tube conteg 30 ml of 0.1N HCl and 0.5-3.0 g of the sulfamethizole powder was tightly sealed and shaken at 37°C. The concn of the dissolved drug was detd spectrophotometrically following filtration through a Millipore filter (type EH, pore size 0.5 μm), and the procedure was repeated every 24 h until a const concn was obtained.

SOURCE AND PURITY OF MATERIALS:

Comm available 250-mg uncoated tablets of sulfamethizole were used. Hydrochloric acid was of reagent grade.

ESTIMATED ERROR:

Nothing specified

REFERENCES:
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-(sulfamethizole); C_9_\text{H}_1_0_\text{N}_4_\text{O}_4\text{S}_2; [144-82-1]
2. Hydrochloric acid; HCl; [7647-01-0]
3. Sodium chloride; NaCl; [7647-14-5]
4. Water; H_2O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**

Nicklasson, M.; Brodin, A.; Nyqvist, H. 

**VARIABLES:**

One temperature: 37°C; one pH: 1.20

**PREPARED BY:**

R. Piekos

**EXPERIMENTAL VALUES:**

Solubility of sulfamethizole in a HCl - NaCl buffer solution of pH 1.20 (ionic strength 0.2) at 37°C is 5.62 mg/ml \(\pm 2.08 \times 10^{-2}\) mol dm\(^{-3}\), compiler.

\(^{a}\)Numerical value given by one of the authors (M. N.)

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

Sulfamethizole, taken in excess of a quantity required for saturation, was added to the HCl-NaCl buffer soln of pH 1.20. The suspension was equilibrated at 37°C for 18-24 h using a magnetic stirrer. No degradation of the drug was observed at the pH indicated. Five ml samples were filtered through 0.1-\(\mu\)m poly carbonate filters (Nuclepore\(^\circledR\) Co.), and diluted to suitable concn for spectrophotometry. Concentrations were determined using a Pye Unicam SP8-100 spectrophotometer. Samples were assayed at wavelengths of max absorption, taking into consideration changes in spectra due to ionization.

**SOURCE AND PURITY OF MATERIALS:**

Sulfamethizole of commercial grade was used (source not specified). HCl and NaCl were anal grade reagents (source not specified). Purity of the water was not specified.

**ESTIMATED ERROR:**

Soly: mean of 2 dets is given (authors).

pH: precision ±0.01 pH unit (authors).

Temp: ±0.5°C (authors).

**REFERENCES:**
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
</table>
| (1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)- (sulfamethylthiadiazole); C$_9$H$_{10}$N$_4$O$_2$S$_2$; [144-82-1] | Krüger-Thiemer, E.  

(2) Phosphoric acid, disodium salt; Na$_2$HPO$_4$; [7558-94-4]  

(3) Water; H$_2$O; [7732-18-5]  

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: ca 20°C; one pH: 8.74</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

EXPERIMENTAL VALUES:

Solubility of sulfamethy1thiadiazole in a 0.705 M (10%) Na$_2$HPO$_4$ solution of pH 8.74, at room temperature (about 20°C), is 1.625 g%  
(6.011 x 10$^{-2}$ mol dm$^{-3}$ solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfamethy1thiadiazole (0.5 g) was dissolved in 10 cm$^3$ of the 0.705 M (10%) Na$_2$HPO$_4$ solution of pH 8.74, shaken for 2 h at room temp (about 20°C), and filtered. A 1-cm$^3$ aliquot of the filtrate was withdrawn, cooled, acidified with 2N HCl, and the sulfonamide content was detd colorimetrically by the method of Marshall modified by Kimmig (1) using an Authenrieth colorimeter. The pH was detd on an ultramicrograph using a glass electrode.

SOURCE AND PURITY OF MATERIALS:
Sulfamethy1thiadiazole was the product manufd by Schering under the name Tetracid.  
The source and purity of the remaining materials was not specified.

ESTIMATED ERROR:
Soly: precision ±5% (author).  
Temp: not specified.  
pH : ±0.05 pH unit (author).

REFERENCES:
COMPONENTS:

<table>
<thead>
<tr>
<th>Component</th>
<th>Formula</th>
<th>CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulphonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazole-2-yl)- (sulfamethythiadiazol); C$<em>9$H$</em>{10}$N$_4$O$_2$S$_2$</td>
<td>[144-82-1]</td>
<td></td>
</tr>
<tr>
<td>(2) Phosphoric acid, monopotassium salt; KH$_2$PO$_4$</td>
<td>[7778-77-0]</td>
<td></td>
</tr>
<tr>
<td>(3) Water; H$_2$O</td>
<td>[7732-18-5]</td>
<td></td>
</tr>
</tbody>
</table>

VARIABLES:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature</td>
<td>ca 20°C</td>
</tr>
<tr>
<td>One pH</td>
<td>4.37</td>
</tr>
</tbody>
</table>

EXPERIMENTAL VALUES:

Solubility of sulfamethythiadiazole in a 0.735 M (10%) KH$_2$PO$_4$ solution of pH 4.37, at room temperature (about 20°C), is 0.027 g% (9.99 x 10$^{-2}$ mol dm$^{-3}$ solution, compiler).

METHOD/APPARATUS/PROCEDURE:

Sulfamethythiadiazole (0.5 g) was dissolved in 10 cm$^3$ of the 0.735 M (10%) KH$_2$PO$_4$ soln, shaken for 2 h at room temp (about 20°C), and filtered. A 1-cm$^3$ aliquot of the filtrate was withdrawn, cooled, acidified with 2N HCl, and the sulfonamide content was detd colorimetrically by the method of Marshall modified by Kimmig (1) using an Authenrieth colorimeter. The pH was detd on an ultramonograph using a glass electrode.

SOURCE AND PURITY OF MATERIALS:

Sulfamethythiadiazole was the product manufd by Schering under the name Tetracid. The source and purity of the remaining reagents were not specified.

ESTIMATED ERROR:

<table>
<thead>
<tr>
<th>Error Source</th>
<th>Error Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soly</td>
<td>±5% (author)</td>
</tr>
<tr>
<td>Temp</td>
<td>not specified</td>
</tr>
<tr>
<td>pH</td>
<td>±0.05 pH unit (author)</td>
</tr>
</tbody>
</table>

REFERENCES:

COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazole-2-yl)-(sulfamethylthiadiazole); C₉H₈N₄O₂S₂; [144-82-1]
(2) Phosphoric acid, disodium salt; Na₂HPO₄; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH₂PO₄; [7778-77-0]
(4) Water; H₂O; [7732-18-5]

VARIABLES:
Temperature, pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Composition of 1/15 M phosphate buffer solutions</th>
<th>pH</th>
<th>Room temp (ca 20°C) g%</th>
<th>37°C g%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Na₂HPO₄</td>
<td>KH₂PO₄</td>
<td>%Content</td>
<td></td>
</tr>
<tr>
<td>1.0</td>
<td>99.0</td>
<td>0.91</td>
<td>4.944</td>
</tr>
<tr>
<td>10.0</td>
<td>90.0</td>
<td>0.91</td>
<td>5.906</td>
</tr>
<tr>
<td>61.1</td>
<td>38.9</td>
<td>0.93</td>
<td>7.005</td>
</tr>
<tr>
<td>9.5</td>
<td>0.5</td>
<td>0.733b</td>
<td>7.51</td>
</tr>
<tr>
<td>94.7</td>
<td>5.3</td>
<td>0.95</td>
<td>8.018</td>
</tr>
</tbody>
</table>

a Calculated by compiler
b Molar content; 10% buffer solution

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfamethylthiadiazole (0.5 g) was dissolved in 10 cm³ of a buffer soln, shaken for 2 h at 20°C (or left for 48 h at 37°C), and filtered at respective temp. A 1-cm³ aliquot of the filtrate was then withdrawn, cooled (dil for expts at 37°C), acidified with 1 cm³ of 2N HCl, and the sulfonamide content was detd colorimetrically by the method of Marshall modified by Kimmig (1) using an Authenrieth colorimeter. The pH was detd on an ultraionograph using a glass electrode.

SOURCE AND PURITY OF MATERIALS:
Sulfamethylthiadiazole was the product manufd by Schering under the name Tetrad. The source and purity of the remaining materials were not specified.

ESTIMATED ERROR:
Soly: precision ±5% (author)
Temp: not specified
pH : ±0.05 pH unit (author)

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-y1) (sulfamethythiadiazole); C9H10N4O2S2; [144-82-1]
(2) Phosphoric acid, disodium salt; Na2HPO4; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH2PO4; [7778-77-0]
(4) Water; H2O; [7732-18-5]

VARIABLES:

pH

EXPERIMENTAL VALUES:

Solubility of sulfamethythiadiazole in buffers of varying mixtures of Na2HPO4·7H2O (71.6 g/l distilled water; 0.27 mol dm⁻³, compiler) and KH2PO4 (36.3 g/l distilled water; 0.27 mol dm⁻³, compiler) at 37°C.

<table>
<thead>
<tr>
<th>Initial pH</th>
<th>Solubility mg/100 ml</th>
<th>10⁻² mol dm⁻³ a</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td>105</td>
<td>0.388</td>
</tr>
<tr>
<td>5.0</td>
<td>125</td>
<td>0.462</td>
</tr>
<tr>
<td>5.5</td>
<td>200</td>
<td>0.739</td>
</tr>
<tr>
<td>6.0</td>
<td>470</td>
<td>1.738</td>
</tr>
<tr>
<td>6.5</td>
<td>1000</td>
<td>3.699</td>
</tr>
<tr>
<td>7.0</td>
<td>1990</td>
<td>7.361</td>
</tr>
<tr>
<td>8.0</td>
<td>9250</td>
<td>34.218</td>
</tr>
</tbody>
</table>

a Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Solns were prep'd by adding an excess of sulfamethythiadiazole to 10 ml of buffer soln at each pH level in 18 x 150-mm test tubes, stoppering the tubes and placing them in a water bath at 37°C with gentle agitation for 24 h. The mixt was then filtered and a 1-ml aliquot was accurately pipetted into a volumetric flask for diln and analysis. The balance was retained for pH detn to ascertain any change in pH value. The sulfonamide was assayed colorimetrically by the method of Bratton and Marshall as described in detail by Biamonte and Schneller (1). A standard curve was prep'd using accurately prep'd standard solutions.

SOURCE AND PURITY OF MATERIALS:
Neither source nor purity of the reagents were specified. Distilled water was used.

ESTIMATED ERROR:
Soly: av values of duplicate runs are reported (authors).
Temp and pH: not specified.

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)- (sulfamethizole); C₉H₁₀N₄O₂S₂; [144-82-1]
(2) Phosphoric acid, disodium salt; Na₂HPO₄; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH₂PO₄; [7778-77-0]
(4) Water; H₂O; [7732-18-5]

VARIABLES: pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility at 25°C mg/l</th>
<th>10³ mol dm⁻³ a</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5</td>
<td>1555</td>
<td>5.752</td>
</tr>
<tr>
<td>7.5</td>
<td>5022</td>
<td>18.578</td>
</tr>
</tbody>
</table>

aCalculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Satd solns of sulfamethizole were prepd in phosphate buffers of pH 5.5 and 7.5 at room temp (25°C). The concn of the solute was measured by means of a Spectra Physics 3500B high-performance liquid chromatograph equipped with a column oven (Model 748) and a Pye-Unicam LC-UV spectrophotometric detector. The detector was connected to a 1-mV recorder. A stainless steel column (10 cm x 4.6 mm i.d.) was packed with Lichrosorb RPS, 5 µm, obtained from Chrompack. An injection loop of 100 µl was used. The oven temp was 40°C. Detection of sulfamethizole was performed at 260 nm.

SOURCE AND PURITY OF MATERIALS:
The source and purity of the materials were not specified.

ESTIMATED ERROR:
The detection limit of the solute by HPLC was 0.5 mg/l (authors). The error in temperature and pH was not specified.

REFERENCES:

ORIGINAL MEASUREMENTS:

PREPARED BY:
R. Piekos
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol -2-yl)- (sulfamethizole) C₉H₁₀N₄O₂S₂; [144-82-1]
(2) Phosphoric acid; H₃PO₄; [7664-38-2]
(3) Phosphoric acid; monosodium salt; NaH₂PO₄; [7558-80-7]
(4) Sodium chloride; NaCl; [7647-14-5]
(5) Water; H₂O; [7732-18-5]

VARIABLES:
pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility in a H₃PO₄ - NaH₂PO₄ - NaCl buffer solution (ionic strength 0.2) at 37°C⁴</th>
<th>mg/ml</th>
<th>10⁻³ mol dm⁻³ b</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.93</td>
<td>1.73</td>
<td>6.40</td>
<td></td>
</tr>
<tr>
<td>3.15</td>
<td>0.76</td>
<td>2.81</td>
<td></td>
</tr>
</tbody>
</table>

a Numerical values given by one of the authors (M.N.)
b Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfamethizole, taken in excess of a quantity required for satn, was added to the H₃PO₄ - NaH₂PO₄ - NaCl buffer soln and the suspension was equilibrated at 37°C for 18-24 h using a magnetic stirrer. No degradation of the drug was observed at the pH values indicated. Five-ml samples were filtered through 0.1-μm polycarbonate filters (Nuclepore® Co.), and diluted to suitable concn for spectrophotometry. Concns were determined using a Pye Unicam SP8-100 spectrophotometer. Samples were assayed at wavelengths of max absorption, taking into consideration changes in spectra due to ionization.

SOURCE AND PURITY OF MATERIALS:
Sulfamethizole of commercial grade was used (source not specified). The remaining materials were anal grade reagents (source not specified). Purity of the water was not specified.

ESTIMATED ERROR:
Solv: mean of 2 detns is given (authors). pH : precision ±0.01 pH unit (authors). Temp: ±0.5°C (authors).

REFERENCES:

PREPARED BY:
R. Piekos
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl) - (sulfamethizole); C_{9}H_{10}N_{4}O_{2}S_{2}; [144-82-1]
(2) Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]
(3) 1,2,3-Propanecarboxylic acid, 2-hydroxy-(citric acid); C_{6}H_{8}O_{7}; [77-92-9]
(4) Sodium chloride; NaCl; [7647-14-5]
(5) Water; H_{2}O; [7732-18-5]

VARIABLES: pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>mg/ml</th>
<th>mol dm^{-3} b</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.50</td>
<td>0.77</td>
<td>2.85 \times 10^{-3}</td>
</tr>
<tr>
<td>5.32</td>
<td>1.66</td>
<td>6.14 \times 10^{-3}</td>
</tr>
<tr>
<td>6.10</td>
<td>9.55</td>
<td>3.53 \times 10^{-2}</td>
</tr>
<tr>
<td>7.38</td>
<td>134.9</td>
<td>0.4990</td>
</tr>
</tbody>
</table>

aNumerical values given by one of the authors (M.N.).

bCalculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfamethizole, taken in excess of a quantity required for satn, was added to the citric acid-Na_{2}HPO_{4}-NaCl buffer soln and the suspension was equilibrated at 37^\circ C for 18-24 h using magnetic stirrer. No degradation of the drug was observed at the pH values indicated. Five-ml samples were filtered through 0.1-\mu m polycarbonate filters (Nuclapore\textsuperscript{\textregistered} Co.), and dild to suitable concn for spectrophotometry. Concns were determined using a Pye Unicam SP8-100 spectrophotometer. Samples were assayed at wavelengths of max absorption, taking into consideration changes in spectra due to ionization.

SOURCE AND PURITY OF MATERIALS:
Sulfamethizole of commercial grade was used (source not specified).
The remaining materials were anal grade reagents (source not specified).
Purity of the water was not specified.

ESTIMATED ERROR:
Soly: mean of 2 detns is given (authors).
pH : precision ±0.01 pH unit (authors).
Temp: ±0.5^\circ C (authors).

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)- (sulfamethyl-thiadiazole); C₉H₁₀N₄O₂S₂; [144-82-1]
(2) Phosphoric acid, disodium salt; Na₂H₂PO₄; [7558-94-4]
(3) 1,2,3-Propanetricarboxylic acid, 2-hydroxy- (citric acid); C₆H₈O₇; [77-92-9]
(4) Water; H₂O; [7732-18-5]

VARIABLES:
One temperature: 37°C; one pH: 4

EXPERIMENTAL VALUES:

Intrinsic solubility\(^a\) of sulfamethylthiadiazole in a solution 0.025 M in Na₂H₂PO₄ and 0.05 M in citric acid, of pH 4, at 37°C is (33.2 ± 0.8 x 10\(^{-4}\) mol liter\(^{-1}\), compiler)

\(^a\)Under "intrinsic solubility" a minimum on the solubility - pH curve is meant which corresponds to the limiting concentration of the undissociated form of sulfamethylthiadiazole.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The soln was equilibrated for 48 h in a thermostat under occasional stirring. Samples were withdrawn through a 1-μ membrane filter, dill with 0.155M NaOH soln to ensure total dissocn of sulfamethylthiadiazole, and the sulfonamide was assayed by UV spectrophotometry.

SOURCE AND PURITY OF MATERIALS:
Nothing specified.

ESTIMATED ERROR:
Soly: std error of 8 measurements was ±0.8 x 10\(^{-4}\) mol liter\(^{-1}\) (authors). pH: accuracy ±0.5 pH unit (authors). Temp: ±0.1°C (authors).

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)- (sulfamethylthiadiazole); C₉H₇ON₄O₂S₂; [144-82-1]
(2) Calcium chloride; CaCl₂; [10043-52-4]
(3) Magnesium chloride; MgCl₂; [7786-30-3]
(4) Phosphoric acid, monoammonium salt; NH₄H₂PO₄; [7722-76-1]
(5) Potassium chloride; KCl; [7447-40-7]
(6) Sodium chloride; NaCl; [7647-14-5]
(7) Urea; CH₄N₂O; [57-13-6]
(8) Water; H₂O; [7732-18-5]

VARIABLES:
ph at 37°C

EXPERIMENTAL VALUES:
Solubility of sulfamethylthiadiazole in a solution containing CaCl₂ 0.143, MgCl₂ 0.121, NH₄H₂PO₄ 0.300, KCl 1.660, NaCl 2.950 and urea 20 g/dm³ (synthetic urea, Mosher Vehicle) at 37°C.

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility (mg/100 ml)</th>
<th>Solubility (10² mol/dm³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td>120</td>
<td>0.444</td>
</tr>
<tr>
<td>5.0</td>
<td>150</td>
<td>0.555</td>
</tr>
<tr>
<td>5.5</td>
<td>260</td>
<td>0.962</td>
</tr>
<tr>
<td>6.0</td>
<td>620</td>
<td>2.293</td>
</tr>
<tr>
<td>6.5</td>
<td>1980</td>
<td>7.324</td>
</tr>
<tr>
<td>6.9</td>
<td>8400</td>
<td>31.074</td>
</tr>
</tbody>
</table>

aCalculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Excess sulfamethylthiadiazole was added to aliquots of synthetic urine solns and 1% H₃PO₄ or 1% NaOH solns were used to adjust the pH to the required value. The solns were agitated for 24 h with addn of acid or base to keep them at the desired pH level until equilibrium was attained. Then the solns were filtered and in aliquots the sulfonamide was assayed spectrophotometrically by the method described by Biamonte and Schneller (1).

SOURCE AND PURITY OF MATERIALS:
Nothing specified

ESTIMATED ERROR:
Soly: average values of 2 detns were given.
Temp: not specified.
ph : not specified.

REFERENCES:
1. Biamonte, A. R.; Schneller, G. E.
   1952, 41, 341.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-(sulfamethizole); [144-82-1]
(2) Sulfuric acid monododecyl ester, sodium salt (Na lauryl sulfate); C_{12}H_{25}NaO_{4}S; [151-21-3]
(3) Water; H_{2}O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Watari, N.; Kaneniwa, N.

VARIABLES:
Concentration of Na lauryl sulfate

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Concentration of Na lauryl sulfate</th>
<th>Total solubility of sulfamethizole at 37°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>mg/ml solution</td>
<td>10^3 mol dm^{-3}</td>
</tr>
<tr>
<td>% w/v</td>
<td></td>
</tr>
<tr>
<td>0.01</td>
<td>0.864</td>
</tr>
<tr>
<td>0.05</td>
<td>0.877</td>
</tr>
<tr>
<td>0.10</td>
<td>0.899</td>
</tr>
<tr>
<td>0.25</td>
<td>1.00</td>
</tr>
<tr>
<td>0.50</td>
<td>1.36</td>
</tr>
<tr>
<td>1.00</td>
<td>1.86</td>
</tr>
<tr>
<td>2.00</td>
<td>2.64</td>
</tr>
<tr>
<td>3.00</td>
<td>3.42</td>
</tr>
<tr>
<td>4.00</td>
<td>4.05</td>
</tr>
<tr>
<td>6.00</td>
<td>5.45</td>
</tr>
</tbody>
</table>

NOTE: Calculated by compiler

Source and Purity of Materials:
Commercial sulfamethizole of the Japanese Pharmacopeia grade and distd water were used.
Na lauryl sulfate was of the reagent grade (Wako Pure Chemical Industries, Ltd. lot No. PA10233) and used without further purification.

Estimated Error:
Soly: not specified.
Temp: ±0.05°C (authors).

References:
1. Kaneniwa, N.; Watari, N.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-(sulfamethizole); 
\( \text{C}_9\text{H}_9\text{N}_4\text{O}_2\text{S}_2; \ [144-82-1] \)
(2) Ethanol; \( \text{C}_2\text{H}_6\text{O; \ [64-17-5]} \)

VARIABLES:
Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>( t/^{\circ}\text{C} )</th>
<th>Solubility(^a) ( \times 10^2 \text{ mol dm}^{-3} \text{ solution} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>2.44</td>
</tr>
<tr>
<td>20</td>
<td>3.24</td>
</tr>
<tr>
<td>30</td>
<td>4.28</td>
</tr>
<tr>
<td>40</td>
<td>5.84</td>
</tr>
<tr>
<td>50</td>
<td>7.90</td>
</tr>
</tbody>
</table>

\(^a\) Original data are presented graphically. 
The numerical values are given by the authors.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
After attaining equilibrium, sample solns were removed by a syringe and filtered quickly through a membrane filter (pore size 0.2 \( \mu \) ) and sulfamethizole was assayed spectrophotometrically at 284 nm using a Hitachi Type 200-20 spectrophotometer.

SOURCE AND PURITY OF MATERIALS:
Sulfamethizole (Eisai Co.) was of the Japanese Pharmacopeia IX grade. Abs EtOH was obtained by drying and distn of EtOH following the conventional procedures.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-(sulfamethizole);
   C_{9}H_{10}N_{4}O_{2}S_{2}; [144-82-1]
(2) 2-Pyrrolidinone-, 1-ethenyl-, polymers
   (poly-vinyl pyrrolidone);
   (C_{6}H_{9}NO)_{x}; [9003-39-8] K-15
(3) Ethanol; C_{2}H_{6}O; [64-17-5]

VARIABLES: Temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>t/°C</th>
<th>M \times 10^2 \text{sulfamethizole} solubilized by 1M vinyl pyrrolidone equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.0</td>
<td>5.51</td>
</tr>
<tr>
<td>20.0</td>
<td>6.58</td>
</tr>
<tr>
<td>30.0</td>
<td>7.85</td>
</tr>
<tr>
<td>40.0</td>
<td>9.75</td>
</tr>
<tr>
<td>50.0</td>
<td>12.1</td>
</tr>
</tbody>
</table>

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
After attaining equilibrium, sample solns were removed by a syringe and filtered quickly through a membrane filter, (pore size 0.2 μ) and sulfamethizole was assayed spectrophotometrically at 284 nm using a Hitachi Type 200-20 spectrophotometer. No significant absorbance was found for poly-vinyl pyrrolidone.

SOURCE AND PURITY OF MATERIALS:
Poly(vinyl pyrrolidone) K-15 was from Daiichi Pure Chemicals Co., Tokyo. Sulfamethizole (Esai Co.) was of the Japanese Pharmacopeia IX grade. Abs EtOH was obtained by drying and distn of EtOH following the conventional procedures.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-, monosilver salt (Ag sulfamethizole); C₉H₉AgN₄O₂S₂; [24342-31-2]
2. 4-Morpholinepropanesulfonic acid; C₇H₁₅NO₄S; [1132-61-2]
3. 4-Morpholinepropanesulfonic acid, sodium salt; C₇H₁₄NNaO₄S; [71119-22-7]
4. Potassium nitrate; KN₃; [7757-79-1]
5. Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Nesbitt, R. U., Jr.; Sandmann, B. J.

PREPARED BY: R. Piekos

VARIABLES:
Hydronium-ion concentration

EXPERIMENTAL VALUES:
Equilibrium values of S² (S = total molar solubility) versus [H₃O⁺] for Ag sulfamethizole in 0.05M 4-morpholinepropanesulfonic acid buffer at 0.1M ionic strength (KNO₃) and 25±0.1°C.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Mixt of 100 mg Ag sulfamethizole and 25 or 27 ml of the 4-morpholinepropanesulfonic acid buffer were placed in paraffin-coated vials, adjusted to an ionic strength 0.1M with KNO₃, and rotated end over end in a thermostated bath until equilibrium soly was obtained (3-7 days). After filtration through 20M glass filtering crucibles, the solns were analyzed at 25±0.1°C in paraffin-coated beakers for Ag ions with a silver-ion selective electrode No. 94-16, Orion Res., Cambridge, Mass) standardized at the temp indicated and 0.1M ionic strength. The pH was measured with a triple-purpose pH electrode (Corning Sci. Instruments, Medfield, Mass) standardized using buffers meeting NBS requirements. The buffers were prep'd with a total molar concn of 0.05M and adjusted to an ionic strength of 0.1M with KNO₃.

SOURCE AND PURITY OF MATERIALS:
All reagents used were anal or USP grade. Ag sulfamethizole was prep'd by the method of Rosenzweig and Fuchs (1) and recrystd from ammonia (2). Water had a sp cond of (1-10) x 10⁻⁷ ohm⁻¹cm⁻¹. The buffer soln was from US Biochem. Corp., Cleveland, Ohio (purity not specified).

ESTIMATED ERROR:
Soly: not specified.
Temp: ±0.1°C (authors).

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-, monosilver salt (Ag sulfamethizole); C₉H₉AgN₄O₂S₂;
[24342-31-2]
(2) Nitric acid; HNO₃; [53081-02-0]
(3) Potassium nitrate; KNO₃; [7757-79-1]
(4) Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Nesbitt, R. U., Jr.; Sandman, B. J.

VARIABLES:

<table>
<thead>
<tr>
<th>pH</th>
<th>S x 10⁴</th>
<th>[Ag⁺] x 10⁹</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.931</td>
<td>4.073</td>
<td>4.052</td>
</tr>
<tr>
<td></td>
<td>4.077</td>
<td>4.068</td>
</tr>
<tr>
<td></td>
<td>4.088</td>
<td>4.068</td>
</tr>
<tr>
<td></td>
<td>4.062</td>
<td>4.036</td>
</tr>
<tr>
<td></td>
<td>4.120</td>
<td>4.099</td>
</tr>
<tr>
<td></td>
<td>4.080</td>
<td>4.021</td>
</tr>
<tr>
<td>Mean</td>
<td>4.084</td>
<td>4.057</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pH</th>
<th>S x 10⁴</th>
<th>[Ag⁺] x 10⁹</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.565</td>
<td>1.477</td>
<td>1.486</td>
</tr>
<tr>
<td></td>
<td>1.491</td>
<td>1.486</td>
</tr>
<tr>
<td></td>
<td>1.477</td>
<td>1.492</td>
</tr>
<tr>
<td></td>
<td>1.459</td>
<td>1.475</td>
</tr>
<tr>
<td></td>
<td>1.482</td>
<td>1.486</td>
</tr>
<tr>
<td></td>
<td>1.476</td>
<td>1.475</td>
</tr>
<tr>
<td>Mean</td>
<td>1.477</td>
<td>1.483</td>
</tr>
</tbody>
</table>

EXPERIMENTAL VALUES:
Comparison of Total Silver Sulfamethizole Molar Solubility, S, Determined by the Method of Known Subtraction with the Molar Concentration of the Silver Ion Determined by Direct Potentiometry of Identical Samples at 25±0.1°C, 0.1M Ionic Strength, in Nitric Acid Buffer

METHOD/APPARATUS/PROCEDURE:
Mixts of 100 mg of Ag sulfamethizole and 25 or 27 ml of the nitric acid buffer were placed in paraffin-coated vials, adjusted to an ionic strength 0.1M with KNO₃, and rotated end over end in a thermostated bath until equilibrium soly was obtained (3-7 days). After filtration through 20M glass filtering crucibles, the solns were analyzed at 25±0.0°C in paraffin-coated beakers for Ag⁺ ions with a silver-ion selective electrode (No.94-16, Orion Res., Cambridge, Mass) standardized at the temp indicated and 0.1M ionic strength. The pH was measured with a triple-purpose pH electrode (Corning Sci. Instruments, Medfield, Mass) standardized using buffers meeting NBS requirements. The nitric acid buffers were prepd by diln to 0.1M HNO₃ and were adjusted to an ionic strength of 0.1M with KNO₃.

SOURCE AND PURITY OF MATERIALS:
All reagents were anal or USP grade. Ag sulfamethizole was prepd by the method of Rosenzweig and Fuchs (1) and recrytd from ammonia (2). Water had a sp cond of (1-10) x 10⁻⁷ ohm⁻¹cm⁻¹.
The source of the reagents was not specified.

ESTIMATED ERROR:
Soly: when tested by one way analysis of variance, the means displayed in the Table were found not to be statistically different at the 1% confidence level (authors).

REFERENCES:
### COMPONENTS:

**ORIGINAL MEASUREMENTS:**
Nesbitt, R. U., Jr.; Sandman, B. J.  
*J. Pharm. Sci.* 1978, 67(7), 1012-17.

### VARIABLES:

**pH**

### PREPARED BY:

R. Piekos

### EXPERIMENTAL VALUES:

Continued from previous page

Calculation of the solubility product of Ag sulfathiazole\(^a\), \(K_s\), at 25±0.1°C and 0.1M ionic strength

<table>
<thead>
<tr>
<th>(pH)</th>
<th>(f_o)</th>
<th>(S^2)</th>
<th>(K_s)^a</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.965</td>
<td>1.583 x 10^{-4}</td>
<td>1.733 x 10^{-7}</td>
<td>2.74 x 10^{-11}</td>
</tr>
<tr>
<td>2.102</td>
<td>2.526 x 10^{-4}</td>
<td>1.051 x 10^{-7}</td>
<td>2.65 x 10^{-11}</td>
</tr>
<tr>
<td>2.345</td>
<td>5.448 x 10^{-4}</td>
<td>4.693 x 10^{-8}</td>
<td>2.56 x 10^{-11}</td>
</tr>
<tr>
<td>2.598</td>
<td>1.132 x 10^{-3}</td>
<td>2.508 x 10^{-8}</td>
<td>2.85 x 10^{-11}</td>
</tr>
</tbody>
</table>

\(\text{Mean (2.70±0.12) x 10^{-11}}\)

\(\text{a} K_s\) reported as mean ±SD

\(\text{a} \) from eq. \(K_s = f_o S^2\), where \(f_o = \left(1 + \frac{[H_2O^+]}{K_2} + \frac{[H_2O^+]^2}{K_1K_2}\right)^{-1}\)

\(S\) is the total molar solubility, and \(K_1\) and \(K_2\) are the apparent dissociation constants of the N\(^4\)-(amino) and N\(^1\)- (amido) hydrogens of sulfathiazole, respectively.

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**

**SOURCE AND PURITY OF MATERIALS:**

**ESTIMATED ERROR:**

**REFERENCES:**
**COMPONENTS:**

**ORIGINAL MEASUREMENTS:**
Nesbitt, R. U., Jr.; Sandmann, B. J.
*J. Pharm. Sci.* 1978, 67(7), 1012-17.

**VARIABLES:**

\[ \text{pH} \]

**PREPARED BY:**
R. Piekos

**EXPERIMENTAL VALUES:**
Continued from previous page

<table>
<thead>
<tr>
<th>([\text{Ag}^+]/[\text{H}_3\text{O}^+] \times 10^5)</th>
<th>([\text{H}_3\text{O}^+] \times 10^3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>2.0</td>
</tr>
<tr>
<td>2.0</td>
<td>4.0</td>
</tr>
<tr>
<td>3.0</td>
<td>6.0</td>
</tr>
<tr>
<td>4.0</td>
<td>8.0</td>
</tr>
<tr>
<td>5.0</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Equilibrium values of \([\text{Ag}^+]/[\text{H}_3\text{O}^+] \times 10^5\) versus \([\text{H}_3\text{O}^+] \times 10^3\) for silver sulfamethizole in nitric acid buffer at 0.1M ionic strength and 25±0.1°C

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

**SOURCE AND PURITY OF MATERIALS:**

**ESTIMATED ERROR:**

**REFERENCES:**
Molar solubility, $S$, of Ag sulfamethizole versus pH at 0.1M ionic strength and 25±0.1°C. Key: • calculated from equation

$$S^2 = [Ag^+]^2 = \frac{[H_3O]^+}{K_1} K_s + \frac{[H_3O^+]}{K_2} K_s$$
**COMPONENTS:**

(1) Acetamide, N-[4-[[5-methyl-1,3,4-thiadiazol-2-yl]amino]sulfonyl]phenyl]-
(acetyl sulfamethythiadiazole);
C₁₁H₁₂N₄O₃S₂; [39719-87-4]

(2) Water; H₂O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**

Durel, M. P.; Allinne, M.  

**VARIABLES:**

One temperature: 37°C

**EXPERIMENTAL VALUES:**

Solubility of acetyl sulfamethythiadiazole in water at 37°C is 0.10 g/liter
(3.2 x 10⁻⁴ mol dm⁻³, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
The mixt of acetyl sulfamethythiadiazole and water was agitated for 24 hours at 37°C.

**SOURCE AND PURITY OF MATERIALS:**
Source and purity of acetyl sulfamethylthiadiazole were not specified.
Distilled water was used.

**ESTIMATED ERROR:**
Nothing specified.

**REFERENCES:**
COMPONENTS:
(1) Acetamide, N-[4-[[5-methyl-1,3,4-
      thiadiazol-2-yl]amino]sulfonyl]phenyl]-
      (acetyl sulfamethylthiadiazole);
      C_{11}H_{12}N_{4}O_{3}S_{2}; [39719-87-4]
(2) Phosphoric acid, disodium salt;
      Na_{2}HPO_{4}; [7558-94-4]
(3) Water; H_{2}O; [7732-18-5]

VARIABLES:
One temperature: ca 20°C; one pH: 8.74

EXPERIMENTAL VALUES:

Solubility of acetyl sulfamethyldiazole in a 0.705M (10%) Na_{2}HPO_{4}
solution of pH 8.74 at room temperature (about 20°C) is 1.250 g%
(4.002 x 10^{-2} mol dm^{-3} solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Acetyl sulfamethyldiazole (0.5 g) was
dissolved in 10 cm³ of the 0.705M (10%)
Na_{2}HPO_{4} soln, shaken for 2 h at room temp
(about 20°C), and filtered. The filtrate
was treated with equal vol of 2N HCl and
refluxed for 15 min. After proper diln, a
1-cm³ aliquot was withdrawn, acidified,
cooled, and the sulfonamide content was
detd colorimetrically (as sulfamethyldia-
zole) by the Marshall method modified
by Kimmig (1) using anAuthenrieth colori-
meter. The pH was detd on an ultraiono-
graph using a glass electrode.

SOURCE AND PURITY OF MATERIALS:
Acetyl sulfamethyldiazole (source not
specified) gave no coloration upon diazo-
tization of its satd soln, thus showing
absence of sulfamethyldiazole. The
source and purity of the remaining materi-
als were not specified.

ESTIMATED ERROR:
Soly: precision ±5% (author)
Temp: not specified.
pH : ±0.05 pH unit (author)

REFERENCES:
1. Kimmig, J. Arch. Dermatol. Syphilis 1942, 103,
   90-116.
**COMPONENTS:**

1. Acetamide, N-{4-[[5-methyl-1,3,4-thiadiazol-2-yl]amino)sulfonyl]phenyl}-(acetyl sulfamethylthiadiazole); C$_{11}$H$_{12}$N$_4$O$_3$S$_2$; [39719-87-4]
2. Phosphoric acid, monopotassium salt; KH$_2$PO$_4$; [7778-77-0]
3. Water; H$_2$O; [7732-18-5]

**VARIABLES:**

One temperature: ca 20°C; one pH: 4.37

**ORIGINAL MEASUREMENTS:**

Krüger-Thiemer, E.

**EXPERIMENTAL VALUES:**

Solubility of acetyl sulfamethylthiadiazole in a 0.735M (10%) KH$_2$PO$_4$ solution of pH 4.37 at room temperature (about 20°C) is 0.0066 g% (2.11 x 10$^{-4}$ mol dm$^{-3}$ solution, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

Acetyl sulfamethylthiadiazole (0.5 g) was dissolved in the 0.735M (10%) KH$_2$PO$_4$ soln, shaken for 2 h at room temp (about 20°C), and filtered. The filtrate was treated with equal vol of 2N HCl, and refluxed for 15 min. After proper diln, a 1-cm$^3$ aliquot was withdrawn, acidified, cooled, and the sulfonamide content was detd colorimetrically by the Marshall method modified by Kimmig (1) using an Authenrieth colorimeter. The pH was detd on an ultraionograph using a glass electrode.

**SOURCE AND PURITY OF MATERIALS:**

Acetyl sulfamethylthiadiazole (source not specified) gave no coloration upon diazotization of its satd soln, thus showing absence of sulfamethylthiadiazole. The source and purity of the remaining materials were not specified.

**ESTIMATED ERROR:**

Soly: precision ±5% (author)
Temp: not specified
pH: ±0.05 pH unit (author)

**REFERENCES:**

COMPONENTS:

(1) Acetamide, N-[4-[[5-methyl-1,3,4-thiadiazol-2-yl]amino)sulfonyl]phenyl]-
    (acetyl sulfamethylthiadiazole); 
    C_{11}H_{12}N_{4}O_{3}S_{2};  [39719-87-4]

(2) Phosphoric acid, disodium salt; 
    Na_{2}HPO_{4};  [7558-94-4]

(3) Phosphoric acid, monopotassium salt; 
    KH_{2}PO_{4};  [7778-77-0]

(4) Water; H_{2}O;  [7732-18-5]

ORIGINAL MEASUREMENTS:

Krüger-Thiemer, E. 

PREPARED BY:

R. Piekos

VARIABLES:  
Temperature; pH

EXPERIMENTAL VALUES:

Composition of 1/15M phosphate buffer solution  

<table>
<thead>
<tr>
<th>Na_{2}HPO_{4}</th>
<th>KH_{2}PO_{4}</th>
<th>%Content</th>
<th>pH</th>
<th>10^{-3} mol dm^{-3} solution</th>
<th>g%</th>
<th>10^{-3} mol dm^{-3} solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>99.0</td>
<td>0.91</td>
<td>4.944</td>
<td>0.0073</td>
<td>0.23</td>
<td>-</td>
</tr>
<tr>
<td>10.0</td>
<td>90.0</td>
<td>0.91</td>
<td>5.906</td>
<td>0.022</td>
<td>0.70</td>
<td>0.022</td>
</tr>
<tr>
<td>61.1</td>
<td>38.9</td>
<td>0.93</td>
<td>7.005</td>
<td>0.197</td>
<td>6.31</td>
<td>0.274</td>
</tr>
<tr>
<td>9.5</td>
<td>0.5</td>
<td>0.733b</td>
<td>7.51</td>
<td>0.726</td>
<td>23.24</td>
<td>-</td>
</tr>
<tr>
<td>94.7</td>
<td>5.3</td>
<td>0.95</td>
<td>8.018</td>
<td>0.455</td>
<td>14.57</td>
<td>-</td>
</tr>
</tbody>
</table>

a Calculated by compiler
b Molar content; 10% buffer solution

Solubility

<table>
<thead>
<tr>
<th>Room temp (ca 20°C)</th>
<th>37°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>g% 10^{-3} mol dm^{-3} solution</td>
<td>g% 10^{-3} mol dm^{-3} solution</td>
</tr>
<tr>
<td>---------------------</td>
<td>------</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Acetyl sulfamethylthiadiazole (0.5 g) was dissolved in 10 cm³ of a buffer soln., shaken for 2 h at 20°C (or left for 48 h at 37°C), and filtered at respective temp. The filtrate was treated with equal vol of 2N HCl and refluxed for 15 min. After proper dltn, a 1-cm³ aliquot was withdrawn, acidified, cooled, and the sulfonamide content was detd colorimetrically (as sulfamethylthiadiazole) by the Marshall method modified by Kimmig (1) using an Authenrieth colorimeter. The pH was detd on an ultrasonograph using a glass electrode.

SOURCE AND PURITY OF MATERIALS:

Acetyl sulfamethylthiadiazole (source not specified) gave no coloration upon diazotization of its satd soln, thus showing absence of sulfamethylthiadiazole. The source and purity of the remaining materials were not specified.

ESTIMATED ERROR:

Soly: precision ±5% (author).  
Temp: not specified.  
pH: ±0.05 pH unit (author).

REFERENCES:

COMPONENTS:
(1) Acetamide, N-[4-[[5-methyl-1,3,4-thiadiazol-2-yl]amino]sulfonyl]phenyl| (acetyl sulfamethylthiadiazole); 
\(C_{11}H_{12}N_{4}O_{3}S_{2}\); [39719-87-4]
(2) Phosphoric acid, disodium salt; 
\(\text{Na}_2\text{HPO}_4\); [7558-94-4]
(3) Phosphoric acid, monopotassium salt; 
\(\text{KH}_2\text{PO}_4\); [7778-77-0]
(4) Water; \(\text{H}_2\text{O}\); [7732-18-5]

ORIGINAL MEASUREMENTS:
Bandelin, F. J.; Malesh, W.

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:
Solubility of acetyl sulfamethylthiadiazole in buffers of varying mixtures of \(\text{Na}_2\text{HPO}_4\cdot 7\text{H}_2\text{O}\) (71.6 g/l distilled water; 0.27 mol dm\(^{-3}\), compiler) and \(\text{KH}_2\text{PO}_4\) (36.3 g/l distilled water; 0.27 mol dm\(^{-3}\), compiler) at 37°C.

<table>
<thead>
<tr>
<th>Equilibrium pH</th>
<th>Solubility (based on sulfamethylthiadiazole)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg/100 ml</td>
</tr>
<tr>
<td>4.5</td>
<td>41</td>
</tr>
<tr>
<td>5.0</td>
<td>50</td>
</tr>
<tr>
<td>5.5</td>
<td>71</td>
</tr>
<tr>
<td>6.0</td>
<td>102</td>
</tr>
<tr>
<td>6.3</td>
<td>260</td>
</tr>
<tr>
<td>6.6</td>
<td>630</td>
</tr>
<tr>
<td>7.3</td>
<td>2400</td>
</tr>
</tbody>
</table>

a Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Solns were prep'd by adding an excess of acetyl sulfamethylthiadiazole to 10 ml of buffer soln at each pH level in 18 x 150-mm test tubes, stoppering the tubes, placing them in water bath at 37°C with gentle agitation for 24 h. The solute was then hydrolyzed with 5% \(\text{H}_2\text{SO}_4\) for 1 h to liberate the free sulfonamide. One-ml aliquot of the hydrolyzate was accurately pipetted into a volumetric flask for diln and analysis. The sulfonamide was assayed colorimetrically by the method of Bratton and Marshall as described in detail by Biamonte and Schneller (1). A standard curve was prep'd using accurately prep'd standard solutions.

SOURCE AND PURITY OF MATERIALS:
Neither source nor purity of the reagents were specified. Distilled water was used.

ESTIMATED ERROR:
Soly: ave values of duplicate runs are reported (authors).
Temp and pH: not specified.

REFERENCES:
1. Biamonte, A. R.; Schneller, G. E.
COMPONENTS:
(1) Acetamide, N-[4-[[5-methyl-1,3,4-thiadiazole-2-yl]amino]sulfonyl]phenyl]-
(N-acetylsulfamethizole); C_{17}H_{12}N_{4}O_{3}S_{2}; [39719-87-4]
(2) Phosphoric acid, disodium salt; Na_{2}H_{2}P_{2}O_{7}; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH_{2}P_{2}O_{7}; [7778-77-0]
(4) Water; H_{2}O; [7732-18-5]

VARIABLES: pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility at 25°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg/l</td>
</tr>
<tr>
<td>5.5</td>
<td>200</td>
</tr>
<tr>
<td>7.5</td>
<td>3000</td>
</tr>
</tbody>
</table>

a Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Satd solns of N\textsuperscript{4}-acetylsulfamethizole were
prepd in phosphate buffers of pH 5.5 and 7.5
at room temp (25°C). The concn of the sol-
ute was measured by means of a Spectra Phy-
sics 3500B high-performance liquid chroma-
tograph equipped with a column oven (Model
748) and a Pye-Unicam LC-UV spectrophoto-
metric detector. The detector was connect-
ed to a 1-mV recorder. A stainless steel
column (10 cm x 4.6 mm i.d.) was packed
with Lichrosorb RPS, 5 \mu m, obtained from
Chrompack. An injection loop of 100 \mu l was
used. The oven temp was 40°C. Detection
of the solute was performed at 260 nm.

SOURCE AND PURITY OF MATERIALS:
The source and purity of the materials
were not specified.

ESTIMATED ERROR:
The detection limit of the solute by HPLC
was 0.5 mg/l (authors). The error in tem-
perature and pH were not specified.

REFERENCES:

ORIGINAL MEASUREMENTS:
Hekster, Y.A.; Vree, T. B.; Damsma, J. E.
1981, 8, 133-44.

PREPARED BY:
R. Piekos
COMPONENTS:
1. Acetamide, N-[4-[[5-methyl-1,3,4-thiadiazol-2-yl]amino]sulfonyl]phenyl]-
   (acetyl sulfamethylthiadiazole); C_{11}H_{12}N_{4}O_{3}S_{2}; [39719-87-4]
2. Calcium chloride; CaCl_{2}; [10043-52-4]
3. Magnesium chloride; MgCl_{2}; [7786-30-3]
4. Phosphoric acid, monoammonium salt; NH_{4}H_{2}PO_{4}; [7722-76-1]
5. Potassium chloride; KCl; [7447-40-7]
6. Sodium chloride; NaCl; [7647-14-5]
7. Urea; CH_{4}N_{2}O; [57-13-6]
8. Water; H_{2}O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Bandelin, F. J.; Malesh, W.

PREPARED BY:
R. Piekos

VARIABLES:
 pH at 37°C

EXPERIMENTAL VALUES:

Solubility of acetyl sulfamethylthiadiazole in a solution containing CaCl_{2} 0.143, MgCl_{2} 0.121, NH_{4}H_{2}PO_{4} 0.300, KCl 1.660, NaCl 2.950 and urea 20 g/dm³ (synthetic urine, Mosher Vehicle) at 37°C.

<table>
<thead>
<tr>
<th>Equilibrium pH</th>
<th>Solubility mg/100 ml as sulfamethylthiadiazole</th>
<th>Solubility mol/dm³ a</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td>10</td>
<td>3.7 x 10^{-4}</td>
</tr>
<tr>
<td>5.0</td>
<td>21</td>
<td>7.8 x 10^{-4}</td>
</tr>
<tr>
<td>5.5</td>
<td>45</td>
<td>1.7 x 10^{-3}</td>
</tr>
<tr>
<td>6.0</td>
<td>145</td>
<td>5.4 x 10^{-3}</td>
</tr>
<tr>
<td>6.5</td>
<td>380</td>
<td>1.4 x 10^{-2}</td>
</tr>
<tr>
<td>7.0</td>
<td>995</td>
<td>3.7 x 10^{-2}</td>
</tr>
</tbody>
</table>

aCalculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Excess acetyl sulfamethylthiadiazole was added to aliquots of synthetic urine solns and 1% H_{3}PO_{4} or 1% NaOH solns were used to adjust the pH to the required value. The solns were agitated for 24 h with addn of acid or base to keep them at the desired pH level until equilibrium was attained. Then the solns were filtered and in aliquots the sulfonamide was assayed spectrophotometrically by the method described by Biamonte and Schneller (1). Before detn the soln was refluxed with 5% H_{2}SO_{4} for 1 h to liberate the free amino compd.

SOURCE AND PURITY OF MATERIALS:
Nothing specified.

ESTIMATED ERROR:
Soly: average values of 2 detns were given.
Temp: not specified.
PH: not specified.

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-ethyl-1,3,4-thiadiazol-2-yl)-(sulfathiadiazole);
C₁₀H₁₂N₄O₂S₂; [94-19-9]
(2) Aqueous phosphate buffers

EVALUATOR:
Anthony N. Paruta
Department of Pharmaceutics
University of Rhode Island
Kingston, Rhode Island, USA
and
Ryszard Piekos
Faculty of Pharmacy, University of Gdansk
Gdansk, Poland 1986

CRITICAL EVALUATION:

For the above compound, there were three reports (1-3) which determined the solubility in water at 293K and 310K at five pH levels as shown in Table I.

Table I: Solubility of Sulfathiadiazole in water at various pH's and temperatures

<table>
<thead>
<tr>
<th>Reference</th>
<th>pH</th>
<th>10⁻³ mol dm⁻³</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>293K</td>
</tr>
<tr>
<td>1</td>
<td>4.9a</td>
<td>1.48</td>
</tr>
<tr>
<td>3</td>
<td>5.0b</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>5.9a</td>
<td>2.95</td>
</tr>
<tr>
<td>2</td>
<td>5.9b</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>6.0b</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>7.0a</td>
<td>17.80</td>
</tr>
<tr>
<td>2</td>
<td>7.1a</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>7.0b</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>7.51a</td>
<td>44.91</td>
</tr>
<tr>
<td>3</td>
<td>7.5b</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>8.02a</td>
<td>32.64</td>
</tr>
<tr>
<td>3</td>
<td>8.0b</td>
<td>-</td>
</tr>
</tbody>
</table>

a = buffer concentration at 0.066 mol dm⁻³
b = buffer concentration at 0.27 mol dm⁻³

The data of Bandelin and Mallesh (3) reported solubility over a pH range of 5-8 in phosphate buffers of 0.27 mol dm⁻³ concentration substantially greater than in the other data (1,2). The data, while showing the expected large increases in solubility with pH, refer only to initial pH values. At concentrations reported here, especially those about 0.1 mol dm⁻³ (~pH 6.5), the dissolved amount should affect the final pH of the equilibrated solution. This would occur at pH values greater than about 5.5 (pKₐ), by the production of highly soluble anionic species affecting the pH value through the ionic strength effect. The values given by Krüger-Thiemer (1) and Langecker (2) are for 0.066 mol dm⁻³ phosphate buffer. There are two sets of values that merit consideration, those at pH 5.9 and pH 7.0 (1,2). If it can be assumed that the solubility at 310K and a pH 5.5 (~pKₐ) is about 2 x 10⁻³ mol dm⁻³ then at pH 5.9, about 2.5 times as many highly water soluble anions are formed leading to a value of about 5 x 10⁻³ mol dm⁻³. The average of the two values (1,2) lead to a tentative solubility value at a pH = 5.9 in phosphate buffer of 4.88 x 10⁻³ mol dm⁻³. At a pH of 7, there would be about 31 fold increase in anions, however, the values only indicate about a 10-11 fold increase. Although the values at a pH 7 (1,2) are reasonable in magnitude they could not be reconciled with each other and were not considered further. None of the data at 293K was duplicated by any two authors and are shown for completeness and data enhancement trend (except for pH 7.5) as a function of pH.

REFERENCES:
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-(5-ethyl-1,3,4-thiadiazol-2-yl)- (sulfathiaethythiadiazole); C_{10}H_{12}N_{4}O_{2}S_{2} [94-19-9]</td>
<td></td>
</tr>
<tr>
<td>(2) Water; H_{2}O; [7732-18-5]</td>
<td>Durel, M. P.; Allinne, M.</td>
</tr>
<tr>
<td></td>
<td>1941, 251-9.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 37°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
</tr>
</thead>
</table>

Solubility of sulfathiaethythiadiazole in water at 37°C is 0.40 g/liter (1.41 \times 10^{-3} \text{ mol dm}^{-3}, compiler ).

<table>
<thead>
<tr>
<th>AUXILIARY INFORMATION</th>
</tr>
</thead>
</table>

**METHOD/APPARATUS/PROCEDURE:**
A mixture of sulfathiaethythiadiazole and water was agitated for 24 hours at 37°C.

**SOURCE AND PURITY OF MATERIALS:**
Source and purity of sulfathiaethythiadiazole were not specified.
Distilled water was used.

**ESTIMATED ERROR:**
Nothing specified.

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-ethyl-1,3,4-thiadiazol-2-yl)-(sulfaethylthiadiazole); C\textsubscript{10}H\textsubscript{12}N\textsubscript{4}O\textsubscript{2}S\textsubscript{2}; [94-19-9]
(2) Water; H\textsubscript{2}O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Langecker, H.

VARIABLES:
One temperature: 37°C

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfaethylthiadiazole in water at 37°C is 60 mg%
(2.11 x 10\textsuperscript{-3} mol dm\textsuperscript{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An excess of sulfaethylthiadiazole in water was boiled and left for 24 h in a vessel protected from access of CO\textsubscript{2}. The concn of the sulfonamide was detd colorimetrically by the method of Bratton and Marshall (1) using a Havemann colorimeter (2), as well as by microanal detn of the solid residue.

SOURCE AND PURITY OF MATERIALS:
Source and purity of the materials were not specified.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
J. Biol. Chem. 1939, 188, 537.
2. Havemann, R.
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-(5-ethyl-1,3,4-thiadiazol-2-yl)- (sulfaethylthiadiazole); C_{10}H_{12}N_{4}O_{2}S_{2}; [94-19-9]</td>
<td>Langecker, H.</td>
</tr>
<tr>
<td>(3) Water; H_{2}O; [7732-18-5]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 37°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility of sulfaethylthiadiazole in a 0.9% w/w NaCl solution at 37°C is 62 mg% (2.2 x 10^{-3} mol dm^{-3}, compiler).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AUXILIARY INFORMATION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>METHOD/APPARATUS/PROCEDURE:</td>
<td>SOURCE AND PURITY OF MATERIALS:</td>
</tr>
<tr>
<td>An excess of sulfaethylthiadiazole in the 0.9% w/w NaCl soln was boiled for 1 h in a sealed ampul followed by keeping the ampul at 37°C. The concn of the sulfonamide was assayed colorimetrically by the method of Bratton and Marshall (1) using a Havemann colorimeter (2), as well as by microanal detn of the solid residue.</td>
<td>Source and purity of the materials were not specified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESTIMATED ERROR:</th>
<th>REFERENCES:</th>
</tr>
</thead>
</table>
**COMPONENTS:**

1. Benzenesulfonamide, 4-amino-N-(5-ethyl-1,3,4-thiadiazol-2-yl)- (sulfaethylthiadiazole); C₁₀H₁₂N₄O₂S₂; [94-19-9]
2. Phosphoric acid, disodium salt; Na₂HPO₄; [7558-94-4]
3. Water; H₂O; [7732-18-5]

**VARIABLES:**

One temperature: ca 20°C; one pH: 8.74

**EXPERIMENTAL VALUES:**

Solubility of sulfaethylthiadiazole in a 0.705M (10%) Na₂HPO₄ solution of pH 8.74 at room temperature (about 20°C) is 1.820 g% (6.400 x 10⁻² mol dm⁻³ solution, compiler).

**METHOD/APPARATUS/PROCEDURE:**

Sulfaethylthiadiazole (0.5 g) was dissolved in 10 cm³ of the 0.705M (10%) Na₂HPO₄ solution of pH 8.74, shaken for 2 h at room temp (about 20°C), and filtered. A 1-cm³ aliquot of the filtrate was withdrawn, cooled, acidified with 1 cm³ of 2N HCl, and the sulfonamide content was detd colorimetrically by the method of Marshall modified by Kimmig (1) using an Authenrieth colorimeter. The pH was detd on an ultraionograph using a glass electrode.

**SOURCE AND PURITY OF MATERIALS:**

Sulfaethylthiadiazole was the product manufd by Schering under the name Globucid. The source and purity of the remaining materials were not specified.

**ESTIMATED ERROR:**

Soly: precision ±5% (author).
Temp: not specified.
pH: ±0.05 pH unit (author).

**REFERENCES:**

<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAl MEASUREMENTS:</th>
</tr>
</thead>
</table>
| (1) Benzenesulfonamide, 4-amino-N-(5-ethyl-1,3,4-thiadiazol-2-yl)- (sulfaethylthiadiazole); C₁₀H₁₂N₄O₂S₂; [94-19-9] | Krüger-Thiemer, E.  
| (2) Phosphoric acid, monopotassium salt; KH₂PO₄; [7778-77-0] |                         |
| (3) Water; H₂O; [7732-18-5]         |                         |

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: ca 20°C; one pH: 4.37</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility of sulfaethylthiadiazole in a 0.735M (10%) KH₂PO₄ solution of pH 4.37 at room temperature (about 20°C) is 0.0167 g% (5.87 x 10⁻⁶ mol dm⁻³ solution, compiler).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AUXILIARY INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHOD/APPARATUS/PROCEDURE:</td>
</tr>
<tr>
<td>Sulfathiazole (0.5 g) was dissolved in 10 cm³ of the 0.735M (10%) KH₂PO₄ soln of pH 4.37, shaken for 2 h at room temp (about 20°C), and filtered. A 1-cm³ aliquot of the filtrate was withdrawn, cooled, acidiﬁed with 1 cm³ of 2N HCl, and the sulfonamide content was detd colorimetrically by the method of Marshall modiﬁed by Kimmig (1) using an Authenrieth colorimeter. The pH was detd on an utraiongraph using a glass electrode.</td>
</tr>
</tbody>
</table>

| SOURCE AND PURITY OF MATERIALS: |
| Sulfathiazole was the product manufd by Schering under the name Globucid. The source and purity of the remaining materials were not specified. |

| ESTIMATED ERROR: |
| Soly: precision ±5% (author).  
  Temp: not speciﬁed.  
  pH: ±0.05 pH unit (author) |

| REFERENCES: |
COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-(5-ethyl-1,3,4-thiadiazol-2-yl)- (sulfaethylthiadiazole); C<sub>10</sub>H<sub>12</sub>N<sub>4</sub>O<sub>2</sub>S<sub>2</sub>; [94-19-9]
2. Phosphoric acid, disodium salt; Na<sub>2</sub>H<sub>2</sub>PO<sub>4</sub>; [7758-94-4]
3. Phosphoric acid, monopotassium salt; KH<sub>2</sub>PO<sub>4</sub>; [7778-77-0]
4. Water; H<sub>2</sub>O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Krüger-Thiemer, E.

PREPARED BY:
R. Piekos

VARIABLES:
Temperature; pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Composition of 1/15M phosphate buffer solution</th>
<th>pH</th>
<th>%Content</th>
<th>g%</th>
<th>10&lt;sup&gt;2&lt;/sup&gt; mol dm&lt;sup&gt;-3&lt;/sup&gt;</th>
<th>g%</th>
<th>10&lt;sup&gt;2&lt;/sup&gt; mol dm&lt;sup&gt;-3&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Na&lt;sub&gt;2&lt;/sub&gt;HPO&lt;sub&gt;4&lt;/sub&gt;</td>
<td>KH&lt;sub&gt;2&lt;/sub&gt;PO&lt;sub&gt;4&lt;/sub&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.0</td>
<td>99.0</td>
<td>0.91</td>
<td>4.944</td>
<td>0.042</td>
<td>0.148</td>
<td>-</td>
</tr>
<tr>
<td>10.0</td>
<td>90.0</td>
<td>0.91</td>
<td>5.906</td>
<td>0.084</td>
<td>0.295</td>
<td>0.132</td>
</tr>
<tr>
<td>61.1</td>
<td>38.9</td>
<td>0.93</td>
<td>7.005</td>
<td>0.506</td>
<td>1.780</td>
<td>0.652</td>
</tr>
<tr>
<td>9.5</td>
<td>0.5</td>
<td>0.733&lt;sup&gt;b&lt;/sup&gt;</td>
<td>7.51</td>
<td>1.277</td>
<td>4.491</td>
<td>-</td>
</tr>
<tr>
<td>94.7</td>
<td>5.3</td>
<td>0.95</td>
<td>8.018</td>
<td>0.928</td>
<td>3.264</td>
<td>-</td>
</tr>
</tbody>
</table>

<sup>a</sup>Calculated by compiler.
<sup>b</sup>Molar content; 10% buffer solution.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sulfaethylthiadiazole (0.5 g) was dissolved in 10 cm<sup>3</sup> of a buffer soln, shaken for 2 h at 20°C (or left for 48 h at 37°C), and filtered at respective temp. A 1-cm<sup>3</sup> aliquot of the filtrate was then withdrawn, cooled, (dild for expts at 37°C), acidified with 1 cm<sup>3</sup> of 2N HCl, and the sulfonamide content was detd colorimetrically by the method of Marshall modified by Kimmig (1) using an Authenrieth colorimeter. The pH was detd on an ultraionograph using a glass electrode.

SOURCE AND PURITY OF MATERIALS:
Sulfaethylthiadiazole was the product manufd by Schering under the name Globucid. The source and purity of the remaining materials were not specified.

ESTIMATED ERROR:
Soly: precision ±5 (author)
Temp: not specified
pH: ±0.05 pH unit (author)

REFERENCES:
**COMPONENTS:**

1. Benzene sulfonamide, 4-amino-N-(5-ethyl-1,3,4-thiadiazol-2-yl)- (sulfaethylthiadiazole); C_{10}H_{12}N_{4}O_{5}S_{2}; [94-19-9]
2. Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]
3. Phosphoric acid, monopotassium salt; KH_{2}PO_{4}; [7778-77-0]
4. Water; H_{2}O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**

Langecker, H.

**PREPARED BY:**

R. Piekos

**ORIGINAL MEASUREMENTS:**

<table>
<thead>
<tr>
<th>pH of the 1/15M phosphate buffer</th>
<th>Solubility at 37°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg%</td>
</tr>
<tr>
<td>5.7</td>
<td>146</td>
</tr>
<tr>
<td>5.9</td>
<td>146\textsuperscript{b}</td>
</tr>
<tr>
<td>6.6</td>
<td>500</td>
</tr>
<tr>
<td>7.1</td>
<td>610</td>
</tr>
</tbody>
</table>

\textsuperscript{a} Calculated by compiler.  
\textsuperscript{b} Measured at 20°C.

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

An excess of sulfaethylthiadiazole was added to a buffer soln and boiled for 1 h in a sealed ampul followed by keeping the ampul at 37°C. The concn of the sulfonamide was detd colorimetrically by the method of Bratton and Marshall (1) using a Havemann colorimeter (2), as well as by microanal detn of the solid residue.

**SOURCE AND PURITY OF MATERIALS:**

Source and purity of the materials were not specified.

**REFERENCES:**

COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-ethyl-1,3,4-thiadiazole-2-yl)-(sulfaethylthiadiazole); \( \text{C}_{10}\text{H}_{12}\text{N}_{4}\text{O}_{2}\text{S}_{2} \); [94-19-9]
(2) Phosphoric acid, disodium salt; \( \text{Na}_2\text{HPO}_4 \); [7558-94-4]
(3) Phosphoric acid, monopotassium salt; \( \text{KH}_2\text{PO}_4 \); [7778-77-0]
(4) Water; \( \text{H}_2\text{O} \); [7732-18-5]

VARIABLES:
\( \text{pH} \)

EXPERIMENTAL VALUES:
Solubility of sulfaethylthiadiazole in buffers of varying mixtures of \( \text{Na}_2\text{HPO}_4 \cdot 7\text{H}_2\text{O} \) (71.6 g/l distilled water; 0.27 mol dm\(^{-3}\); compiler) and \( \text{KH}_2\text{PO}_4 \) (36.3 g/l distilled water; 0.27 mol dm\(^{-3}\); compiler) at 37°C.

<table>
<thead>
<tr>
<th>Initial pH</th>
<th>Solubility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg/100 ml</td>
</tr>
<tr>
<td>5.0</td>
<td>325</td>
</tr>
<tr>
<td>5.5</td>
<td>465</td>
</tr>
<tr>
<td>6.0</td>
<td>760</td>
</tr>
<tr>
<td>6.5</td>
<td>2250</td>
</tr>
<tr>
<td>7.0</td>
<td>5900</td>
</tr>
<tr>
<td>7.5</td>
<td>7300</td>
</tr>
<tr>
<td>8.0</td>
<td>17,000</td>
</tr>
</tbody>
</table>

\(a\)Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Solns were prep by adding an excess of sulfaethylthiadiazole to 10 ml of buffer soln at each pH level in 18 x 150-mm test tubes, stoppering the tubes and placing them in a water bath at 37°C with gentle agitation for 24 h. The mixt was then filtered and a 1-ml aliquot was accurately pipetted into a volumetric flask for diln and analysis. The balance was retained for pH detn to ascertain any change in pH value. The sulfonamide was assayed colorimetrically by the method of Bratton and Marshall as described in detail by Biamonte and Schneller (1). A standard curve was prep using accurately prepd standard solutions.

SOURCE AND PURITY OF MATERIALS:
Neither source nor purity of the reagents were specified. Distilled water was used.

ESTIMATED ERROR:
Soly: av values of duplicate runs are reported (authors).
Temp and pH: not specified.

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-ethyl-1,3,4-thiadiazol-2-yl)- (sulfaethylthiadiazole); C_{10}H_{12}N_{4}O_{2}S_{2}; [94-19-9]
(2) Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH_{2}PO_{4}; [7778-77-0]
(4) Water; H_{2}O; [7732-18-5]

VARIABLES:
One temperature: 20°C; one pH: 7.4

EXPERIMENTAL VALUES:

Solubility of sulfaethylthiadiazole in M/15 phosphate buffer (pH 7.4) at 20°C is 1500 mg% (5.275 x 10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sörensen buffer solns of pH varying between 7 and 8 were prep'd, satd with sulfaethylthiadiazole at 20°C, their pH was measured at equilibrium, and the sulfaethylthiadiazole was assayed colorimetrically. The measured pH values were plotted against concn, and the soly at pH 7.4 was detd by interpolation (personal communication).

SOURCE AND PURITY OF MATERIALS:
Nothing specified.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-ethyl-1,3,4-thiadiazol-2-yl)- (sulfaethylthiadiazole); C$_{10}$H$_{12}$N$_4$O$_2$S$_2$; [94-19-9]
(2) Phosphoric acid, disodium salt; Na$_2$HPO$_4$; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH$_2$PO$_4$; [7778-77-0]
(4) Water; H$_2$O; [7732-18-8]

VARIABLES:
- pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility at 25°C</th>
<th>10$^3$ mol dm$^{-3}$ a</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5</td>
<td>489</td>
<td>1.72</td>
</tr>
<tr>
<td>7.5</td>
<td>7,110</td>
<td>25.00</td>
</tr>
</tbody>
</table>

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The earlier developed method (1) was used (personal communication). Satd solns of sulfaethylthiadiazole were prepd in phosphate buffers of pH 5.5 and 7.5 at 25°C.
The concn of the solute was measured by means of a Spectra Physics 3500B high-performance liquid chromatograph equipped with a Model 748 column oven and a Pye-Unicam LC-UV spectrophotometric detector.

SOURCE AND PURITY OF MATERIALS:
Neither source nor the purity of the materials was specified.

ESTIMATED ERROR:
Soly: the detection limit of the solute by HPLC was 0.5 mg/l (authors).
The errors in temp and pH were not specified

REFERENCES:
1. Hekster, Y. A.; Vree, T. B.;
   Damsma, J. E.; Friesen, W. T.
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-ethyl-1,3,4-thiadiazol-2-yl)-(sulfaethylthiadiazole); C_{10}H_{12}N_{4}O_{2}S_{2}; [96-19-9]
(2) Calcium chloride; CaCl_{2}; [10043-52-4]
(3) Magnesium chloride; MgCl_{2}; [7786-30-3]
(4) Phosphoric acid, monoammonium salt; \( \text{NH}_4 \text{H}_2 \text{PO}_4 \); [7722-76-1]
(5) Potassium chloride; KCl; [7447-40-7]
(6) Sodium chloride; NaCl; [7647-14-5]
(7) Urea; CH_{2}N_{2}O; [57-13-6]
(8) Water; H_{2}O; [7732-18-5]

VARIABLES: pH at 37°C

EXPERIMENTAL VALUES:
Solubility of sulfaethylthiadiazole in a solution containing CaCl_{2} 0.143, MgCl_{2} 0.121, NH_{4}H_{2}PO_{4} 0.300, KCl 1.660, NaCl 2.950 and urea 20 g/dm^{3} (synthetic urine, Mosher Vehicle) at 37°C.

<table>
<thead>
<tr>
<th>Equilibrium pH</th>
<th>Solubility</th>
<th>mg/100 ml</th>
<th>( 10^2 ) mol/dm^{3}</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4</td>
<td>360</td>
<td>1.27</td>
<td></td>
</tr>
<tr>
<td>4.7</td>
<td>380</td>
<td>1.34</td>
<td></td>
</tr>
<tr>
<td>5.2</td>
<td>440</td>
<td>1.55</td>
<td></td>
</tr>
<tr>
<td>5.6</td>
<td>480</td>
<td>1.69</td>
<td></td>
</tr>
<tr>
<td>6.35</td>
<td>600</td>
<td>2.11</td>
<td></td>
</tr>
<tr>
<td>6.7</td>
<td>1875</td>
<td>6.59</td>
<td></td>
</tr>
</tbody>
</table>

\( ^{a} \text{Calculated by compiler.} \)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Excess sulfaethylthiadiazole was added to aliquots of synthetic urine solns and 1\% H_{3}PO_{4} or 1\% NaOH solns were used to adjust the pH to the required value. The solns were agitated for 24 h with addn of acid or base to keep them at the desired pH level until equilibrium was attained. Then the solns were filtered and in aliquots the sulfonamide was assayed spectrophotometrically by the method described by Biamonte and Schneller (1).

SOURCE AND PURITY OF MATERIALS:
Nothing specified

ESTIMATED ERROR:
Soly: average values of 2 detns were given.
Temp: not specified.
pH : not specified.

REFERENCES:
1. Biamonte, A. R.; Schneller, G. E.
<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Benzenesulfonamide, 4-amino-N-(5-ethyl-1,3,4-thiadiazol-2-yl)- (sulfaethylthiadiazole); C_{10}H_{12}N_{4}O_{2}S_{2}; [94-19-9]</td>
<td>Riess, W. Intern. Congr. Chemotherapy, Proc., 3rd. Stuttgart 1963, 1, 627-32.</td>
</tr>
<tr>
<td>(2) Methane, trichloro- (chloroform); CHCl_{3}; [67-66-3]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One temperature: 20°C</td>
<td>R. Piekos</td>
</tr>
</tbody>
</table>

**EXPERIMENTAL VALUES:**

Solubility of sulfaethylthiadiazole in chloroform at 20°C is 109 mg\% (3.83 x 10^{-3} mol dm^{-3} solution, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
Nothing specified.

**SOURCE AND PURITY OF MATERIALS:**
Nothing specified.

**ESTIMATED ERROR:**
Nothing specified.

**REFERENCES:**

<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGINAL MEASUREMENTS:</th>
</tr>
</thead>
</table>
| (1) Acetamide. N-[4[[5-ethyl-1,3,4-thia-
  diazol-2-yl]amino]sulfonyl]phenyl]-
  (acetyl sulfathia diazole);  
  C_{12}H_{14}N_{4}O_{3}S_{2}; [1037-51-0]  |
| (2) Water; H$_2$O; [7732-18-5]          | Durel, M. P.; Allinne, M.  |
|                             | 1941, 251-9.                     |
| VARIABLES:                  | PREPARED BY:                     |
| One temperature: 37°C       | R. Piekos                        |
| EXPERIMENTAL VALUES:        |                                   |

Solubility of acetyl sulfathia diazole in water at 37°C is 0.20 g/liter (6.1 x 10$^{-4}$ mol dm$^{-3}$, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
A mixt of acetyl sulfathia diazole and water was agitated for 24 hours at 37°C.

SOURCE AND PURITY OF MATERIALS:
Source and purity of acetyl sulfathia diazole was not specified. Distilled water was used.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
COMPONENTS:
(1) Acetamide, N-[4-[[5-ethyl-1,3,4-thiadiazol-2-yl]amino]sulfonyl]phenyl]-
(acetyl sulfaethylthiadiazole);
$C_{12}H_{14}N_4O_3S_2$; [1037-51-0]
(2) Water; $H_2O$; [7732-18-5]

ORIGINAL MEASUREMENTS:
Langecker, H.

VARIBALES:
$\text{pH}$

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility at 37°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\text{mg}%$</td>
</tr>
<tr>
<td>5.2</td>
<td>12</td>
</tr>
<tr>
<td>6.0</td>
<td>16</td>
</tr>
</tbody>
</table>

a Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
An excess of acetyl sulfaethylthiadiazole in water was boiled for 1 h in a sealed ampul followed by keeping the ampul at 37°C. Before the assaying, the solute was treated with 2.6N NaOH soln (1) to cleave the acetyl group and the sulfaethylthiadiazole was detd colorimetrically by the method of Bratton and Marshall (2) using a Havemann colorimeter (3), as well as by microanal detd of the solid residue.

SOURCE AND PURITY OF MATERIALS:
Source and purity of the materials were not specified.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
**COMPONENTS:**

1. Acetamide, N-[4-[[[(5-ethyl-1,3,4-thiadiazol-2-yl)amino]sulfonyl]phenyl]- (acetyl sulfathiazole); C12H14N4O3S2; [1037-51-0]
2. Phosphoric acid, disodium salt; Na2HPO4; [7558-94-4]
3. Water; H2O; [7732-18-5]

**ORIGINAL MEASUREMENTS:**

Krüger-Thiemer, E. 

**VARIABLES:**

One temperature: ca 20°C; one pH: 8.74

**EXPERIMENTAL VALUES:**

Solubility of acetamide in a 0.705M (10%) Na2HPO4 solution of pH 8.74 at room temperature (about 20°C) is 1.840 g% (5.637 x 10^-2 mol dm^-3 solution, compiler).

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

Acetamide (0.5 g) was dissolved in 10 cm^3 of the 0.705M (10%) Na2HPO4 soln, shaken for 2 h at room temp (about 20°C), and filtered. The filtrate was treated with equal vol of 2N HCl, and refluxed for 15 min. After proper diln., a 1-cm^3 aliquot was withdrawn, acidified, cooled, and the sulfonamide content was detd colorimetrically (as sulfathiazole) by the Marshall method modified by Kimmig (1) using an Authenrieth colorimeter. The pH was detd on an ultramicrograph using a glass electrode.

**SOURCE AND PURITY OF MATERIALS:**

Acetamide (source not specified) gave no coloration upon diazotation of its satd soln, thus showing absence of sulfathiazole. The source and purity of the remaining materials were not specified.

**ESTIMATED ERROR:**

Soly: precision ±5% (author). 
Temp: not specified. 
pH: ±0.05 pH unit (author).

**REFERENCES:**

**COMPONENTS:**

1. Acetamide, N-[4-[[5-ethyl-1,3,4-thiadiazol-2-yl]amino)sulfonyl]phenyl]-
   (acetyl sulfaethylthiadiazole); C_{12}H_{14}N_{4}O_{3}S_{2}; [1037-51-0]
2. Phosphoric acid, monopotassium salt; KH_{2}PO_{4}; [7778-77-0]
3. Water; H_{2}O; [7732-18-5]

**VARIABLES:**

One temperature: ca 20°C; one pH: 4.37

**EXPERIMENTAL VALUES:**

Solubility of acetyl sulfaethylthiadiazole in a 0.735M (10%) KH_{2}PO_{4}

solution of pH 4.37 at room temperature (about 20°C) is 0.0063 g%

(1.9 x 10^{-4} mol dm^{-3} solution, compiler).

**AUXILIARY INFORMATION**

**METHOD APPARATUS PROCEDURE:**

Acetyl sulfaethylthiadiazole (0.5 g) was dissolved in 10 cm^3 of the 0.735M (10%) KH_{2}PO_{4}

soil, shaken for 2 h at room temp (about 20°C), and filtered. The filtrate was treated

with equal vol of 2N HCl and refluxed for 15 min. After proper diln, a l-cm^3 aliquot was

withdrawn, acidified, cooled, and the sulfonamide content was detd colorimetrically (as

sulfaethylthiadiazole) by the Marshall method modified by Kimmig (1) using an Authentic

colorimeter. The pH was detd on an ultraionograph using a glass electrode.

**SOURCE AND PURITY OF MATERIALS:**

Acetyl sulfaethylthiadiazole (source not specified) gave no coloration upon diazo-

tization of its satd soln, thus showing absence of sulfaethylthiadiazole. The

source and purity of the remaining materials was not specified.

**ESTIMATED ERROR:**

Soly: precision ±5% (author).

Temp: not specified.

pH : ±0.05 pH unit (author).

**REFERENCES:**

COMPONENTS:
(1) Acetamide, N-[4-[[5-ethyl-1,3,4-thiadiazole-2-yl]amino]sulfonyl]phenyl]-(acetyl sulfaethylthiadiazole); C12H14N4O3S2; [1037-51-0]
(2) Phosphoric acid, disodium salt; Na2HPO4; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH2PO4; [7778-77-0]
(4) Water; H2O; [7732-18-5]

VARIABLES:
Temperature; pH

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Na2HPO4</th>
<th>KH2PO4</th>
<th>% Content</th>
<th>pH</th>
<th>10^3 mol dm^-3</th>
<th>37°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>99.0</td>
<td>0.91</td>
<td>4.944</td>
<td>0.0128</td>
<td>0.392</td>
</tr>
<tr>
<td>10.0</td>
<td>90.0</td>
<td>0.91</td>
<td>5.906</td>
<td>0.0530</td>
<td>1.600</td>
</tr>
<tr>
<td>61.1</td>
<td>38.9</td>
<td>0.93</td>
<td>7.005</td>
<td>0.3910</td>
<td>12.0</td>
</tr>
<tr>
<td>9.5</td>
<td>0.5</td>
<td>0.73b</td>
<td>7.51</td>
<td>1.1100</td>
<td>34.01</td>
</tr>
<tr>
<td>94.7</td>
<td>5.3</td>
<td>0.95</td>
<td>8.018</td>
<td>0.8790</td>
<td>26.9</td>
</tr>
</tbody>
</table>

a Calculated by compiler
b Molar content; 10% buffer solution

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Acetamide sulfaethylthiadiazole (0.5 g) was dissolved in 10 cm^3 of a buffer soln. shaken for 2 h at 20°C (or left for 48 h at 37°C), and filtered at respective temp. The filtrate was treated with equal vol of 2N HCl and refluxed for 15 min. After proper diln, a 1-cm^3 aliquot was withdrawn, acidified, cooled, and the sulfonamide content was detd colorimetrically (as sulfaethylthiadiazole) by the Marshall method modified by Kimmig (1) using an Authenrieth colorimeter. The pH was detd on an ultraionograph using a glass electrode.

SOURCE AND PURITY OF MATERIALS:
Acetamide sulfaethylthiadiazole (source not specified) gave no coloration upon diazotization of its satd soln, thus showing absence of sulfaethylthiadiazole. The source and purity of the remaining materials were not specified.

ESTIMATED ERROR:
Soly: precision ±5% (author).
Temp: not specified.
pH: ±0.05 pH unit (author).

REFERENCES:
PREPARED BY:
R. Piekos
COMPONENTS:

1. Acetamide, N-[4-[(5-ethyl-1,3,4-thiadiazol-2-yl)amino)sulfonyl]phenyl]-
   (acetyl sulfaethylthiadiazole); C_{12}H_{14}N_{4}O_{3}S_{2}; [1037-51-0]

2. Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]

3. Phosphoric acid, monopotassium salt; KH_{2}PO_{4}; [7778-77-0]

4. Water; H_{2}O; [7732-18-5]

VARIABLES:

pH

EXPERIMENTAL VALUES:

Solubility of acetyl sulfaethylthiadiazole in buffers of varying mixtures of 
Na_{2}HPO_{4}·H_{2}O (71.6 g/l distilled water; 0.27 mol dm^{-3}, compiler) and KH_{2}PO_{4} 
(36.3 g/l distilled water; 0.27 mol dm^{-3}, compiler) at 37°C.

<table>
<thead>
<tr>
<th>Equilibrium pH</th>
<th>Solubility (based on sulfaethylthiadiazole)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg/100 ml</td>
</tr>
<tr>
<td>4.5</td>
<td>140</td>
</tr>
<tr>
<td>4.6</td>
<td>162</td>
</tr>
<tr>
<td>5.2</td>
<td>212</td>
</tr>
<tr>
<td>5.6</td>
<td>300</td>
</tr>
<tr>
<td>6.2</td>
<td>510</td>
</tr>
<tr>
<td>6.6</td>
<td>740</td>
</tr>
<tr>
<td>6.8</td>
<td>1175</td>
</tr>
</tbody>
</table>

a Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Solns were prepd by adding an excess of ace-
tyl sulfaethylthiadiazole to 10 ml of buffer 
soln at each pH level in 18 x 150-mm test 
tubes, stoppering the tubes, and placing them 
in water bath at 37°C with gentle agitation 
for 24 h. The solute was then hydrolyzed with 
5% H_{2}SO_{4} for 1 h to liberate the free sulfon-
amide. One-ml aliquot of the hydrolyzate was 
accurately pipetted into a volumetric flask 
diln and analysis. The sulfonamide was 
assayed colorimetrically by the method of 
Bratton and Marshall as described in detail 
by Biamonte and Schneller (1). A standard 
curve was prepd using accurately prepd stan-
dard solutions.

SOURCE AND PURITY OF MATERIALS:

Neither source nor purity of the reagents 
were specified. Distilled water was used.

ESTIMATED ERROR:

Soly: av values of duplicate runs are re- 
ported (authors).

Temp and pH: not specified.

REFERENCES:

1. Biamonte, A. R.; Schneller, G. E. 
   1952, 41, 341.
### COMPONENTS:
1. Acetamide, N-{4-[(5-ethyl-1,3,4-thiadiazol-2-yl)amino]sulfonyl}phenyl-(acetyl sulfaethylthiadiazole); 
   C₁₂H₁₄N₄O₃S₂; [1037-51-0]
2. Phosphoric acid, disodium salt; 
   Na₂HPO₄; [7558-94-4]
3. Phosphoric acid, monopotassium salt; 
   KH₂PO₄; [7778-77-0]
4. Water; H₂O; [7732-18-5]

### VARIABLES:
- pH

### EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>Solubility at 25°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg/l</td>
</tr>
<tr>
<td>5.5</td>
<td>392</td>
</tr>
<tr>
<td>7.5b</td>
<td>7,850</td>
</tr>
</tbody>
</table>

- Calculated by compiler
- Erroneous pH value of 7.0 is given in the article

### AUXILIARY INFORMATION

**METHOD/APPROATUS/PROCEDURE:**
The earlier developed method (1) was used (personal communication). Satd solns of acet-yl sulfaethylthiadiazole were prep'd in phos-phate buffers of pH 5.5 and 7.5 at 25°C. The concn of the solute was measured by means of a Spectra Physics 3500B high-performance liquid chromatograph equipped with a Model 748 column oven and a Pye-Unicam LC-UV spectrophotometric detector.

**SOURCE AND PURITY OF MATERIALS:**
Neither source nor the purity of the materials was not specified.

**ESTIMATED ERROR:**
Soly: the detection limit of the solute by HPLC was 0.5 mg/l (authors).
The errors in temp and pH were not specified.

**REFERENCES:**
1. Hekster, Y. A.; Vree, T. B.; 
   Dammas, J. E.; Friesen, W. T. 
COMPONENTS:
(1) Acetamide, N-[4-{[(5-ethyl-1,3,4-thiadiazol-2-yl)amino]sulfonyl]phenyl}-(acetyl sulfaethylthiadiazole); C_{12}H_{14}N_{4}O_{3}S_{2}; [1037-51-0]
(2) Calcium chloride; CaCl_{2}; [10043-52-4]
(3) Magnesium chloride; MgCl_{2}; [7786-30-3]
(4) Phosphoric acid, monoammonium salt; NH_{4}H_{2}PO_{4}; [7722-76-1]
(5) Potassium chloride; KCl; [7447-40-7]
(6) Sodium chloride; NaCl; [7647-14-5]
(7) Urea; CH_{4}N_{2}O; [57-13-6]
(8) Water; H_{2}O; [7732-18-5]

ORIGINAL MEASUREMENTS:

PREPARED BY:
R. Piekos

VARIABLES:
ph at 37°C

EXPERIMENTAL VALUES:
Solubility of acetyl sulfaethylthiadiazole in a solution containing CaCl_{2} 0.143, MgCl_{2} 0.121, NH_{4}H_{2}PO_{4} 0.300, KCl 1.660, NaCl 2.950 and urea 20 g/dm^{3} (synthetic urine, Mosher Vehicle) at 37°C

<table>
<thead>
<tr>
<th>Equilibrium pH</th>
<th>Solubility mg/100 ml as sulfaethylthiadiazole</th>
<th>10^{2} mol dm^{-3} a</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td>225</td>
<td>0.69</td>
</tr>
<tr>
<td>5.0</td>
<td>230</td>
<td>0.70</td>
</tr>
<tr>
<td>5.5</td>
<td>250</td>
<td>0.77</td>
</tr>
<tr>
<td>6.0</td>
<td>350</td>
<td>1.07</td>
</tr>
<tr>
<td>6.5</td>
<td>650</td>
<td>1.99</td>
</tr>
<tr>
<td>7.0</td>
<td>1140</td>
<td>3.49</td>
</tr>
</tbody>
</table>

aCalculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Excess acetyl sulfaethylthiadiazole was added to aliquots of synthetic urine solns and 1% H_{3}PO_{4} or 1% NaOH solns were used to adjust the pH to the required value. The solns were agitated for 24 h with addn of acid or base to keep them at the desired pH level until equilibrium was attained. Then the solns were filtered and in aliquots the acetyl sulfonamide was assayed spectrophotometrically by the method described by Biamonte and Schneller (1). Before detn the soln was refluxed with 5% H_{2}SO_{4} for 1 h to liberate the free amino compound.

SOURCE AND PURITY OF MATERIALS:
Nothing specified.

ESTIMATED ERROR:
Soly: average values of 2 detns were given.
Temp: not specified.
pH: not specified.

REFERENCES:
### COMPONENTS:

1. Benzenesulfonamide, 4-amino-N-(5-propyl-1,3,4-thiadiazol-2-yl); 
   \( \text{C}_{11}\text{H}_{14}\text{N}_{4}\text{O}_{2}\text{S}_{2} \); [71119-32-9]
2. Phosphoric acid, disodium salt; 
   \( \text{Na}_2\text{HPO}_4 \); [7558-94-4]
3. 1,2,3-Propanetricarboxylic acid, 2-hydroxy- (citric acid); 
   \( \text{C}_6\text{H}_8\text{O}_7 \); [77-92-9]
4. Water; \( \text{H}_2\text{O} \); [7732-18-5]

### ORIGINAL MEASUREMENTS:

**Alric, R.; Puech, R.**


### VARIABLES:

- One temperature: 37°C; one pH: 3.5

### EXPERIMENTAL VALUES:

Intrinsic solubility\(^a\) of 4-amino-N-(5-propyl-1,3,4-thiadiazol-2-yl)benzenesulfonamide in a solution 0.025M in \( \text{Na}_2\text{HPO}_4 \) and 0.05M in citric acid, of pH 3.5, at 37°C is \((8.98 \pm 0.23) \times 10^{-4} \) mol liter\(^{-1}\).

\(^a\)Under "intrinsic solubility" a minimum on the solubility - pH curve is meant which corresponds to the limiting concentration of the undissociated form of the sulfonamide.

### AUXILIARY INFORMATION

**METHOD/APPARATUS/PROCEDURE:**
The soln was equilibrated for 48 h in a thermostat under occasional stirring. Samples were withdrawn through a 1-µ membrane filter, diluted with 0.155M NaOH soln to ensure total dissocn of the sulfonamide, and its content was detd by UV spectrophotometry.

**SOURCE AND PURITY OF MATERIALS:**
Nothing specified.

**ESTIMATED ERROR:**
- Soly: std error of 8 measurements was \( \pm 0.23 \times 10^{-4} \) mol liter\(^{-1} \) (authors).
- pH: accuracy \( \pm 0.5 \) pH unit (authors).
- Temp: \( \pm 0.1\)°C (authors).

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-[5-(2-propyl)-1,3,4-thiadiazol-2-yl]-
C_{11}H_{14}N_{4}O_{3}S_{2}; [80-34-2]
(2) Phosphoric acid, disodium salt;
Na_{2}HPO_{4}; [7558-94-4]
(3) 1,2,3-Propanetricarboxylic acid, 2-hydroxy- (citric acid);
C_{6}H_{8}O_{7}; [77-92-9]
(4) Water; H_{2}O; [7732-18-5]

VARIABLES:
One temperature: 37°C; one pH: 4

EXPERIMENTAL VALUES:

Intrinsic solubility\textsuperscript{a} of 4-amino-N-[5-(2-propyl)-1,3,4-thiadiazol-2-yl]benzene-
sulfonamide in a solution 0.025M in Na_{2}HPO_{4} and 0.05M in citric acid, of pH 4,
at 37°C is (7.33 ± 0.20) \times 10^{-4} \text{ mol liter}^{-1}.

\textsuperscript{a}Under "intrinsic solubility" a minimum on the solubility - pH curve
is meant which corresponds to the limiting concentration of the un-
dissociated form of the sulfonamide.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The soln was equilibrated for 48 h in a
thermostat under occasional stirring. Samples
were withdrawn through a 1-μ membrane
filter, dill with 0.155M NaOH soln to ensure
total dissocn of the sulfonamide, and its
content was detd by UV spectrophotometry.

SOURCE AND PURITY OF MATERIALS:

Nothing specified.

ESTIMATED ERROR:

Soly: std error of 8 measurements was ±0.20
\times 10^{-4} \text{ mol liter}^{-1} (authors).
pH : accuracy ±0.5 pH unit (authors).
Temp: ±0.1°C (authors).

REFERENCES:
**COMPONENTS:**

(1) Benzenesulfonamide, 4-amino-N-[5-butyl-1,3,4-thiadiazol-2-yl]--; C_{12}H_{16}N_{4}O_{2}S_{2}; [71119-31-8]

(2) Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]

(3) 1,2,3-Propanetricarboxylic acid, 2-hydroxy- (Citric acid); C_{6}H_{8}O_{7}; [77-92-9]

(4) Water; H_{2}O; [7732-18-5]

**VARIABLES:**

One temperature: 37°C; one pH: 3.5

**EXPERIMENTAL VALUES:**

Intrinsic solubility[^1] of 4-amino-N-[5-butyl-1,3,4-thiadiazol-2-yl]benzenesulfonamide in a solution 0.025M in Na_{2}HPO_{4} and 0.05M in citric acid, of pH 3.5, at 37°C is (2.71 ± 0.06) × 10^{-4} mol liter^{-1}.

[^1]: Under "intrinsic solubility" a minimum on the solubility - pH curve is meant which corresponds to the limiting concentration of the undissociated form of the sulfonamide.

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

The soln was equilibrated for 48 h in a thermostat under occasional stirring. Samples were withdrawn through a 1-µ membrane filter, diluted with 0.155M NaOH soln to ensure total dissoion of the sulfonamide, and its content was detd by UV spectrophotometry.

**SOURCE AND PURITY OF MATERIALS:**

Nothing specified.

**ESTIMATED ERROR:**

Soly: std error of 8 measurements was ±0.06 × 10^{-4} mol liter^{-1} (authors).

pH: accuracy of ±0.5 pH unit (authors).

Temp: ±0.1°C (authors).

**REFERENCES:**
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-[5-(2-methyl-2-propyl)-1,3,4-thiadiazol-2-yl]-; C_{12}H_{16}N_4O_2S_2; [535-65-9]
(2) Phosphoric acid, disodium salt; Na_2HPO_4; [7558-94-4]
(3) 1,2,3-Propanetricarboxylic acid, 2-hydroxy- (citric acid); C_6H_8O_7; [77-92-9]
(4) Water; H_2O; [7732-18-5]

VARIABLES:
One temperature: 37°C; one pH: 3.5

EXPERIMENTAL VALUES:

Intrinsic solubility^a of 4-amino-N-[5-(2-methyl-2-propyl)-1,3,4-thiadiazol-2-yl]benzenesulfonamide in a solution 0.025M in Na_2HPO_4 and 0.05M in citric acid, of pH 3.5, at 37°C is (1.82 ± 0.05) x 10^{-4} mol liter^{-1}.

^aUnder "intrinsic solubility" a minimum on the solubility–pH curve is meant which corresponds to the limiting concentration of the undissociated form of the sulfonamide.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The soln was equilibrated for 48 h in a thermostat under occasional stirring. Samples were withdrawn through a 1-μm membrane filter, diluted with 0.155M NaOH soln to ensure total dissocn of the sulfonamide, and its content was detd by UV spectrophotometry.

SOURCE AND PURITY OF MATERIALS:
Nothing specified.

ESTIMATED ERROR:
Soly: std error of 8 measurements was ±0.05 x 10^{-4} mol liter^{-1} (authors).
pH : accuracy ±0.5 pH unit (authors).
Temp: ±0.1°C (authors).

REFERENCES:

ORIgINAL MEASUREMENTS:
Alric, R.; Puech, R.

PREPARED BY:
R. Piekos
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-(5-pentyl-1,3,4-thiadiazol-2-yl); C_{13}H_{18}N_4O_2S_2; [71119-30-7]
(2) Phosphoric acid, disodium salt; Na_2HP0_4; [7558-94-4]
(3) 1,2,3-Propanetricarboxylic acid, 2-hydroxy- (citric acid); C_6H_8O_7; [77-92-9]
(4) Water; H_2O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Alric, R.; Puech, R.
*J. PharmacoZ. (Paris)* 1971, 2(8), 141-54.

PREPARED BY:
R. PiekoS

VARIABLES:
One temperature: 37°C; one pH: 3.5

EXPERIMENTAL VALUES:

Intrinsic solubility\(^a\) of 4-amino-N-(5-pentyl-1,3,4-thiadiazol-2-yl)benzenesulfonamide in a solution of 0.025M in Na_2HP0_4 and 0.05M in citric acid, of pH 3.5, at 37°C is (1.12 ± 0.04) x 10^{-4} mol liter^{-1}.

\(^a\)Under "intrinsic solubility" a minimum on the solubility - pH curve is meant which corresponds to the limiting concentration of the undissociated form of the sulfonamide.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The soln was equilibrated for 48 h in a thermostat under occasional stirring. Samples were withdrawn through a 1-μ membrane filter, dild with 0.155M NaOH soln to ensure total dissocn of the sulfonamide, and its content was detd by UV spectrophotometry.

SOURCE AND PURITY OF MATERIALS:
Nothing specified.

ESTIMATED ERROR:
Soly: std error of 8 measurements was ±0.04 x 10^{-4} mol liter^{-1} (authors).
Temp: ±0.1°C (authors).
phH : accuracy ±0.5 pH unit (authors).

REFERENCES:
COMPONENTS:
(1) Benzenesulfonamide, 4-amino-N-[5-(3-methylbutyl)-1,3,4-thiadiazol-2-yl]-; C_{13}H_{18}N_{4}O_{2}S_{2}; [71119-29-4]
(2) Phosphoric acid, disodium salt; Na_{2}HPO_{4}; [7558-94-4]
(3) 1,2,3-Propanetricarboxylic acid, 2-hydroxy- (citric acid); C_{6}H_{8}O_{7}; [77-92-9]
(4) Water; H_{2}O; [7732-18-5]

VARIABLES:
One temperature: 37°C; one pH: 3.5

EXPERIMENTAL VALUES:

Intrinsic solubility\(^{a}\) of 4-amino-N-[5-(3-methylbutyl)-1,3,4-thiadiazol-2-yl]benzenesulfonamide in a solution 0.025M in Na_{2}HPO_{4} and 0.05M in citric acid, of pH 3.5, at 37°C is \((0.90 \pm 0.06) \times 10^{-4}\) mol liter\(^{-1}\).

\(^{a}\)Under "intrinsic solubility" a minimum on the solubility – pH curve is meant which corresponds to the limiting concentration of the undissociated form of the sulfonamide.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The soln was equilibrated for 48 h in a thermostat under occasional stirring. Samples were withdrawn through a 1-μm membrane filter, dild with 0.155M NaOH soln to ensure total disso of the sulfonamide, and its content was detd by UV spectrophotometry.

SOURCE AND PURITY OF MATERIALS:
Nothing specified.

ESTIMATED ERROR:
Soly: std error of 8 measurements was ±0.06 \times 10^{-4}\) mol liter\(^{-1}\) (authors).
pH : accuracy ±0.5 pH unit (authors).
Temp: ±0.1°C (authors).

REFERENCES:
**COMPONENTS:**

(1) Benzenesulfonamide, 4-amino-N-(5-amino-1,3,4-thiadiazol-2-yl)-

\[ \text{C}_8\text{H}_9\text{N}_2\text{O}_2\text{S}_2; \quad [71119-25-0] \]

(2) Water; \( \text{H}_2\text{O}; \quad [7732-18-5] \)

**VARIABLES:**

One temperature: 37°C

**EXPERIMENTAL VALUES:**

Solubility of 4-amino-N-(5-amino-1,3,4-thiadiazol-2-yl)benzenesulfonamide in water at 37°C is 36.3 mg/100 cm³ solution

(1.34 \times 10^{-3} \text{ mol dm}^{-3}, \text{ compiler}).

---

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**

Excess sulfonamide in water was heated and stirred on a steam bath for 30 min. The suspension was then agitated for 24 h in a thermostat. A sample of the satd soln was withdrawn through a glass filter, dilled, and analyzed by the Marshall method (1) using a General Electric recording spectrophotometer for comparing the colors developed with those of the standards.

**SOURCE AND PURITY OF MATERIALS:**

The sulfonamide, mp 259°C (cor), was prepd by the authors. Anal. \%C 35.3 (calcd 35.4); \%H 3.5 (3.7); \%N 25.5 (25.8). Purity of the water was not specified.

**ESTIMATED ERROR:**

Nothing specified.

**REFERENCES:**


COMPONENTS:
(1) Benzenesulfonamide, 4-(4,5-dihydro-3-methyl-5-oxo-1H-pyrazol-1-yl)-; C_{10}H_{11}N_{3}O_{3}S; [13269-73-3]
(2) Water; H_{2}O; [7732-18-5]

VARIABLES:
One temperature: 37°C

EXPERIMENTAL VALUES:

Solubility of 4-(4,5-dihydro-3-methyl-5-oxo-1H-pyrazol-1-yl)benzenesulfonamide in water at 37°C is 45.9 mg/100 cm³ solution (1.81 x 10⁻³ mol dm⁻³, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Excess sulfonamide in water was heated and stirred on a steam bath for 30 min. The suspension was then agitated for 24 h in a thermostat at 37°C. A sample of the satd soln was withdrawn through a glass filter, dried, and analyzed by the Marshall method (1) using a General Electric recording spectrophotometer for comparing the colors developed with those of the standards.

SOURCE AND PURITY OF MATERIALS:
The sulfonamide, mp 166-7°C (cor), was prep by the authors. Anal: %C 47.5 (calc 47.4); %H 4.4 (4.4); %N 16.6 (16.6).

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
| Acetamide, N-[(4-acetylamino)phenyl]sulfonyl]-N-(3,4-dimethyl-5-isoxazolyl)- + water | 101 |
| Acetamide, N-[(4-acetylamino)phenyl]sulfonyl]-N-(3,4-dimethyl-5-isoxazolyl)-, (aq) + phosphoric acid, disodium salt | 101 |
| Acetamide, N-[(4-acetylamino)phenyl]sulfonyl]-N-(4-methoxy-1,2,5-thiadiazol-3-yl)- + water | 255 |
| Acetamide, N-[(4-acetylamino)phenyl]sulfonyl]-N-(4-methoxy-1,2,5-thiadiazol-3-yl)-, (aq) + phosphoric acid, disodium salt | 255 |
| Acetamide, N-[(4-aminophenyl)sulfonyl]-N-(3,4-dimethyl-5-isoxazolyl)-, (aq) + phosphoric acid, disodium salt | 255 |
| Acetamide, N-[(4-aminophenyl)sulfonyl]-N-(4-methoxy-1,2,5-thiadiazol-3-yl)-, (aq) + phosphoric acid, disodium salt | 253 |
| Acetamide, N-[(4-aminophenyl)sulfonyl]-N-(4-methoxy-1,2,5-thiadiazol-3-yl)-, (aq) + phosphoric acid, monopotassium salt | 253 |
| Acetamide, N-[(4-aminophenyl)sulfonyl]-N-(4-methoxy-1,2,5-thiadiazol-3-yl)-, (aq) + water | 253 |
| Acetamide, N-[(3,4-dimethyl-5-isoxazolyl)-amino]sulfonyl]-phenyl]- + trichloromethane | 100 |
| Acetamide, N-[(3,4-dimethyl-5-isoxazolyl)-amino]sulfonyl]-phenyl]-, (aq) + calcium chloride | 99 |
| Acetamide, N-[(5-ethyl-1,3,4-thiadiazol-2-yl)amino]sulfonyl]-phenyl]-, (aq) + calcium chloride | 302-309 |
| Acetamide, N-[(5-methyl-3-isoxazolyl)amino]sulfonyl]-phenyl]- + water | 282-288 |
| Acetamide, N-[(5-ethyl-1,3,4-thiadiazol-2-yl)amino]sulfonyl]-phenyl]- + urea | 99 |
| Acetamide, N-[(5-methyl-1,3,4-thiadiazol-2-yl)amino]sulfonyl]-phenyl]- + urea | 309 |
| Acetamide, N-[(5-methyl-3-isoxazolyl)amino]sulfonyl]-phenyl]- + urea | 283, 285-287 |
Acetamide, N-[4-[[5-methyl-1,3,4-thiadiazol-2-yl]amino]sulfonyl]-phenyl]-, (aq) + phosphoric acid, monoammonium salt 288 + phosphoric acid, monopotassium salt 284-287 + potassium chloride 288 + sodium chloride 288 + urea 288

Acetamide, N-[4-[[4-methyl]-2-thiazolylamino]sulfonyl]phenyl]- + water E239, 240-245

Acetamide, N-[4-[[4-methyl]-2-thiazolylamino]sulfonyl]phenyl]-, (aq) + phosphoric acid, disodium salt 243, 245 + phosphoric acid, monopotassium salt 244, 245

Acetamide, N-[4-[[2-thiazolylamino]sulfonyl]phenyl]-, (aq) + phosphoric acid, disodium salt 223, 225-229 + phosphoric acid, monopotassium salt 224-229 + sodium hydroxide 222 + water 219-229

2-(p-Acetamidobenzensulfonamido)thiazole see acetamide, N-[4-[[2-thiazolylamino]sulfonyl]phenyl]-N-(3,4-dimethyl-5-isoxazolyl)

Acetamide, N-[4-[[(5-methyl-1,3,4-thiadiazol-2-yl)amino]sulfonyl]phenyl]-

Acetyl gantrisin see acetamide, N-[4-[[2-thiazolylamino]sulfonyl]phenyl]-N-(3,4-dimethyl-5-isoxazolyl)-

Acetyl sulfadimethylisoxazole see acetamide, N-[4-[[3,4-dimethyl-5-isoxazolyl]-amino]sulfonyl]-phenyl]-

Acetyl sulfaethylthiadiazole see acetamide, N-[4-[[5-ethyl-1,3,4-thiadiazol-2-yl]amino]-sulfonyl]-phenyl]-

N4-Acetylsulfafurazol see acetamide, N-[4-[[3,4-dimethyl-5-isoxazolyl]-amino]sulfonyl]-phenyl]-

N1-Acetyl sulfametrole see acetamide, N-[4-[[4-aminophenyl]sulfonyl]-N-(4-methoxy-1,2,5-thiadiazol-3-yl)]

Acetyl sulfamethoxazole see acetamide, N-[4-[[5-methyl-3-isoxazolyl]-amino]sulfonyl]-phenyl]-

N4-Acetylsulfamethoxazole see acetamide, N-[4-[[5-methyl-3-isoxazolyl]-amino]sulfonyl]-phenyl]-

4'-Acetyl-3-sulfa-5-methylisoxazole see acetamide, N-[4-[[5-methyl-3-isoxazolyl]-amino]sulfonyl]-phenyl]-

Acetyl sulfamethythiazole see acetamide, N-[4-[[5-methyl-1,3,4-thiadiazol-2-yl]amino]-sulfonyl]-phenyl]-

Acetyl sulfamethythiazole see acetamide, N-[4-[[4-methyl]-2-thiazolylamino]sulfonyl]-phenyl]-

Acetyl sulfathiazole see acetamide, N-[4-[[2-thiazolylamino]sulfonyl]-phenyl]-

N4-Acetylsulfisoxazole see acetamide, N-[4-[[5-methyl-3-isoxazolyl]-amino]sulfonyl]-phenyl]-

N1-Acetylsulfisoxazole see acetamide, N-[4-aminophenyl]sulfonyl]-N-(3,4-dimethyl-5-isoxazolyl)-

N'-Acetylsulfisoxazole see acetamide, N-[4-aminophenyl]sulfonyl]-N-(3,4-dimethyl-5-isoxazolyl)-
320 System Index

4-N-Acetyl-sulfalsoxazole
  see acetamide, N-[4-[[3,4-dimethyl-5-isoxazolyl)-amino]sulfonyl]phenyl]-

N-Acetyl sulfoisoxazole
  see acetamide, N-[4-[[3,4-dimethyl-5-isoxazolyl)-amino]sulfonyl]-phenyl]-

N4-Acetyl sulfoisoxazole
  see acetamide, N-[4-[[3,4-dimethyl-5-isoxazolyl)-amino]sulfonyl]-phenyl]-

Aethazol
  see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-

Ag-sulfamethizole
  see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-

Albasil
  see benzenesulfonamide, 1-amino-N-[5-(1,1’dimethylethyl)-1,3,4-thiadiazol-2-yl]-

Alphazole
  see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-

Amidoxal
  see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-

4-Amino-N-[5-amino-1,3,4-thiadiazol-2-yl]benzenesulfonamide
  see benzenesulfonamide, 4-amino-N-(5-amino-1,3,4-thiadiazol-2-yl)-

2-(p-Amino-N-benzenesulfonamide)thiazole sodium salt
  see benzenesulfonamide, 4-amino-N-2-thiazolyl-, monosodium salt

2-(p-Aminobenzenesulfamido)-5-ethyl-1,3,4-thiadiazole
  see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-

p-Aminobenzenesulfamidoisopropylthiadiazole
  see benzenesulfonamide, 4-amino-N-[5-(1-methylethyl)-1,3,4-thiadiazol-2-yl]-

3-(p-Aminobenzenesulfonamido)-2-phenylpyrazole
  see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-

5-(p-Aminobenzenesulfonamido)-3,4-dimethylisoxazole
  see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-

5-(4-Aminobenzenesulfonamido)-3,4-dimethylisoxazole
  see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-

2-(p-Aminobenzenesulfonamido)-5-ethylthiadiazole
  see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-

2-(p-Aminobenzenesulfonamido)thiazole
  see benzenesulfonamide, 4-amino-N-2-thiazolyl-

2-(p-Aminobenzenesulfonamido-4-methylthiazole
  see benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)-

2-(p-Aminobenzosulfonamido)-4,5-dimethyloxaazole
  see benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)-

4-Amino-N-2-benzothiazolylbenzenesulfonamide
  see benzenesulfonamide, 4-amino-N-2-benzothiazolyl-

4-Amino-N-[4-[[1,1’-biphenyl]-4-yl-2-thiazolyl])benzenesulfonamide
  see benzenesulfonamide, 4-amino-N-4-[[1,1’-biphenyl]-4-yl-2-thiazolyl])-

4-Amino-N-[4-[[4-(4-biphenyl)-2-thiazolyl])benzenesulfonamide
  see benzenesulfonamide, 4-amino-N-[4-[[4-(4-biphenyl)-2-thiazolyl])-

4-Amino-N-[5-butyl-1,3,4-thiadiazol-2-yl]-benzenesulfonamide
  see benzenesulfonamide, 4-amino-N-[5-butyl-1,3,4-thiadiazol-2-yl]-

4-Amino-N-(2,3-dihydro-2,5-dimethyl-3-isoxazolyl)benzenesulfonamide
  see benzenesulfonamide, 4-amino-N-(2,3-dihydro-2,5-dimethyl-3-isoxazolyl)-

4-Amino-N-(3,4-dimethyl-5-isoxazolyl)benzenesulfonamide
  see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-

4-Amino-N-(2,3-dihydro-3-methyl-2-thiazolyl)benzenesulfonamide
  see benzenesulfonamide, 4-amino-N-(2,3-dihydro-3-methyl-2-thiazolyl)-

4-Amino-N-(4,5-dimethyl-2-oxazolyl)benzenesulfonamide
  see benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)-
System Index 321

4-Amino-N-1H-imidazol-2-ylbenzenesulfonamide
see benzenesulfonamide, 4-amino-N-1H-imidazol-2-yl-

4-Amino-N-(4-methoxy-1,2,5-thiadiazol-3-yl)benzenesulfonamide
see benzenesulfonamide, 4-amino-N-(4-methoxy-
1,2,5-thiadiazol-3-yl)-

4-Amino-N-[5-(3-methylbutyl)-1,3,4-thiadiazol-2-yl]benzenesulfonamide
see benzenesulfonamide, 4-amino-N-[5-(3-methylbutyl)-
1,3,4-thiadiazol-2-yl]-

4-Amino-N-[5-(1-methylethyl)-1,3,4-thiadiazol-2-yl]benzenesulfonamide

4-Amino-N-(4-methoxy-1,2,5-thiadiazol-3-yl)benzenesulfonamide
see benzenesulfonamide, 4-amino-N-(4-methoxy-
1,2,5-thiadiazol-3-yl)-

4-Amino-N-(5-methyl-3-isoxazolyl)benzenesulfonamide
see benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-

4-Amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)benzenesulfonamide

4-Amino-N-(5-pentyl-1,3,4-thiadiazol-2-yl)benzenesulfonamide

4-Amino-N-(1-phenyl-2,3-dimethyl-5-oxopyrazol-4-yl)benzenesulfonamide
see benzenesulfonamide, 4-amino-N-(1-phenyl-2,3-dimethyl-5-oxo-
pyrazol-4-yl)-

4-Amino-N-(1-phenyl-1H-pyrazol-5-yl)benzenesulfonamide
see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-

4-(4'-Aminophenylsulfonamido)phenylsulfondimethylamide
see benzenesulfonamide, 1-amino-N-[5-(1,1'dimethylethyl)-
1,3,4-thiadiazol-2-yl]-

N-[(4-Aminophenyl)sulfonyl]-N-(3,4-dimethyl-5-isoxazolyl)-
acetamide
see acetamide, N-[(4-aminophenyl)sulfonyl]-N-(3,4-dimethyl-
5-isoxazolyl)-

N-[(4-Aminophenyl)sulfonyl]-N-(3,4-dimethyl-5-isoxazolyl)-
acetamide
see acetamide, N-[(4-aminophenyl)sulfonyl]-N-(3,4-dimethyl-
5-isoxazolyl)-

N-[(4-Aminophenyl)sulfonyl]-N-(4-methoxy-1,2,5-thiadiazol-3-yl)-
acetamide
see acetamide, N-[(4-aminophenyl)sulfonyl]-N-(4-methoxy-
1,2,5-thiadiazol-3-yl)-

N-[(4-Aminophenyl)sulfonyl]-N-(5-methyl-3-isoxazolyl)-
acetamide
see acetamide, N-[(4-aminophenyl)sulfonyl]-N-(5-methyl-
3-isoxazolyl)-

4-Amino-N-[5-(2-propyl)-1,3,4-thiadiazol-2-yl]benzenesulfonamide
see benzenesulfonamide, 4-amino-N-[5-(2-propyl)-
1,3,4-thiadiazol-2-yl]-

4-Amino-N-(5-propyl-1,3,4-thiadiazol-2-yl)benzenesulfonamide
see benzenesulfonamide, 4-amino-N-(5-propyl-
1,3,4-thiadiazol-2-yl)-

2-(p-Amino-N-sodiobenzenesulfonamide)thiazole
see benzenesulfonamide, 4-amino-N-2-thiazoyl-,
monosodium salt
<table>
<thead>
<tr>
<th>Compound</th>
<th>Additional Info</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-Amio-N-1,3,4-thiadiazol-2-yl-benzenesulfonamide</td>
<td>see benzenesulfonamide, 4-amino-N-1,3,4-thiadiazol-2-yl-</td>
</tr>
<tr>
<td>4-Amio-N-1,1,4-thiadiazol-2-yl)sulfanilamide</td>
<td>see benzenesulfonamide, 4-amino-N-(5-amino-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>4-Amio-N-2-thiazolylbenzenesulfonamide</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>4-Amio-N-2-thiazolylbenzenesulfonamide, cobalt complex</td>
<td>see cobalt, bis(4-amino-N-2-thiazolyl-benzenesulfonamidoato-N,01)-, hydrate</td>
</tr>
<tr>
<td>4-Amio-N-2-thiazolylbenzenesulfonamide, copper complex</td>
<td>see copper, bis(4-amino-N-2-thiazolyl-benzenesulfonamidoato-N,01)-, hydrate</td>
</tr>
<tr>
<td>4-Amio-N-2-thiazolylbenzenesulfonamide monohydrochloride</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-, monohydrochloride</td>
</tr>
<tr>
<td>4-Amio-N-2-thiazolylbenzenesulfonamide, monosodium salt</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-, monosodium salt</td>
</tr>
<tr>
<td>4-Amio-N-2-thiazolylbenzenesulfonamide, monosodium salt, hexahydrate</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-, monosodium salt, hexahydrate</td>
</tr>
<tr>
<td>4-Amio-N-1H-1,2,4-triazol-3-ylbenzenesulfonamide</td>
<td>see benzenesulfonamide, 4-amino-N-1H-1,2,4-triazol-3-yl-</td>
</tr>
<tr>
<td>4-Amio-N-1H-1,2,4-triazol-4-ylbenzenesulfonamide</td>
<td>see benzenesulfonamide, 4-amino-N-1H-1,2,4-triazol-4-yl-</td>
</tr>
<tr>
<td>Aseptil 2</td>
<td>see benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)-</td>
</tr>
<tr>
<td>Ayerlucil</td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>Azoquimiol</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>Azoseptale</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
</tbody>
</table>
| Benzenesulfonamide, 4-amino-N-(5-amino-1,3,4-thiadiazol-2-yl)-         | + water                                                                        | 316
| Benzenesulfonamide, 4-amino-N-2-benzothiazolyl-                       | + water                                                                        | 250
| Benzenesulfonamide, 4-amino-N-4-[1,1'-biphenyl]-4-yl-2-thiazolyl]     | + water                                                                        | 251
| Benzenesulfonamide, 4-amino-N-[5-butyl]-1,3,4-thiadiazol-2-yl]-       | + water                                                                        | 312
| Benzenesulfonamide, 4-amino-N-[5-butyl]-1,3,4-thiadiazol-2-yl]-       | + 2-hydroxy-1,2,3-propanetricarboxylic acid                                    | 312
|                                                    | + phosphoric acid, disodium salt                                                | 312
| Benzenesulfonamide, 4-amino-N-(2,3-dihydro-2,5-dimethyl-3-isoxazolyl)-| + trichloromethane                                                             | 103
|                                                    | + water                                                                        | 102
| Benzenesulfonamide, 4-amino-N-(2,3-dihydro-3-methyl-2-thiazolyl)-     | + trichloromethane                                                             | 248
|                                                    | + water                                                                        | 246, 247
| Benzenesulfonamide, 1-amino-N-[5-(1,1'-dimethyllethyl)-1,3,4-thiadiazol-2-yl]- | (aq) + 2-hydroxy-1,2,3-propanetricarboxylic acid                                | 313
|                                                    | + phosphoric acid, disodium salt                                                | 313
| Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-             | + acetic acid, ethyl ester                                                     | 91
|                                                    | + 1-butanol                                                                   | 85
|                                                    | + 1-decanol                                                                   | 88
|                                                    | + ethanol                                                                     | E64, 82, 83
|                                                    | + 1-ethenyl-2-pyrroloidinone polymer                                          | 90
|                                                    | + 2-ethoxyethanol                                                             | 89
|                                                    | + methanol                                                                    | 81
|                                                    | + 1-octanol                                                                   | 87
|                                                    | + 1-pentanol                                                                  | 86
|                                                    | + 1-propyl                                                                    | 84
|                                                    | + trichloromethane                                                           | 92, 93
|                                                    | + water                                                                       | E64, 65-80
| Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)- (aq)        | + calcium chloride                                                            | 76
|                                                    | + carbonic acid, disodium salt                                                | 70, 71
|                                                    | + carbonic acid, monosodium salt                                              | 69, 71
|                                                    | + hydrochloric acid                                                           | 68
Benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)- (aq)  
+ 2-hydroxy-1,2,3-propanetricarboxylic acid 77-79  
+ magnesium chloride 76  
+ phosphoric acid, disodium salt 72-75, 78, 79  
+ phosphoric acid, monoammonium salt 76  
+ phosphoric acid, monopotassium salt 72-75  
+ potassium chloride 76  
+ sodium chloride 76  
+ sorbitan, monododecanoate poly (oxy-1,2-ethanediyl) derivs. 80  
+ urea 76

Benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)-  
+ water 105-107

Benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)-, (aq)  
+ hydrochloric acid 105, 107  
+ 2-hydroxy-1,2,3-propanetricarboxylic acid, disodium salt 107  
+ phosphoric acid, disodium salt 106  
+ phosphoric acid, monopotassium salt 106  
+ sodium chloride 105

Benzenesulfonamide, 4-amino-N-(5-ethyl-1,3,4-thiadiazol-2-yl)-  
+ trichloromethane 301  
+ water E289, 290-300

Benzenesulfonamide, 4-amino-N-(5-ethyl-1,3,4-thiadiazol-2-yl)-, (aq)  
+ aqueous phosphate buffers E289  
+ calcium chloride 300  
+ magnesium chloride 300  
+ phosphoric acid, disodium salt 293, 295-299  
+ phosphoric acid, monoammonium salt 300  
+ phosphoric acid, monopotassium salt 294-299  
+ potassium chloride 300  
+ sodium chloride 292, 300  
+ urea 300

Benzenesulfonamide, 4-amino-N-2-[3-(2-hydroxyethyl)-2,3-dihydro-2-thiazolyl]-  
+ water 249

Benzenesulfonamide, 4-amino-N-1H-imidazol-2-yl-  
+ water 1

Benzenesulfonamide, 4-amino-N-(4-methoxy-1,2,5-oxadiazol-3-yl)-  
+ water 109

Benzenesulfonamide, 4-amino-N-(4-methoxy-1,2,5-thiadiazol-3-yl)-  
+ water 252

Benzenesulfonamide, 4-amino-N-[5-(3-methylbutyl)-1,3,4-thiadiazol-2-yl]-, (aq)  
+ 2-hydroxy-1,2,3-propanetricarboxylic acid 315  
+ phosphoric acid, disodium salt 315

Benzenesulfonamide, 4-amino-N-[5-(1-methylethyl)-1,3,4-thiadiazol-2-yl]-, (aq)  
+ 2-hydroxy-1,2,3-propanetricarboxylic acid 311  
+ phosphoric acid, disodium salt 311

Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-  
+ benzene 50-53  
+ ethanol 47  
+ ethoxyethanol 46  
+ 1,4,7,10,13,16-hexaoxacyclooctadecane (in benzene) 52, 53  
+ methanol E14, E15, 43, 44, 47  
+ 1,1'-oxybisethane 48  
+ petroleum ether 49  
+ 2-propanol 45  
+ trichloromethane 54-57  
+ water E14, E15, 16-42

Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-, (aq)  
+ aminoacetic acid 31  
+ bovine serum albumin 35  
+ ethanol E14, E15, 33, 34  
+ D-fructofuranosyl-α-D-glucopyranoside 41  
+ galactose 40  
+ D-glucitol 37  
+ 4-O-α-D-glucopyranosyl-D-glucose 42  
+ glucose 39
Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-, (aq) + 1,4,7,10,13,16-hexaoxacyclooctadecane 36 + hydrochloric acid E14, E15, 22, 23, 31, 36 + mannitol 38 + phosphoric acid, disodium salt 27-30, 32, 35 + phosphoric acid, monopotassium salt 27-30, 32, 35 + sodium chloride 26, 31, 32, 35 + sodium hydroxide E14, E15, 24, 25

Benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-, compd. with 1,4,7,10,13,16-hexaoxacyclooctadecane complex (1:1) + hydrochloric acid 58 + water 58

Benzenesulfonamide, 4-amino-N-methyl-N-(5-methyl-3-isoxazolyl)- + trichloromethane 60 + water 59

Benzenesulfonamide, 4-amino-N-methyl-N-2-thiazolyl) + trichloromethane 218 + water 216, 217

Benzenesulfonamide, 4-amino-N-(4-methyl-1,2,5-oxadiazol-3-yl)- + water 109

Benzenesulfonamide, 4-amino-N-(5-methyl-1,2,4-oxadiazol-3-yl)- + trichloromethane 10 + water 9

Benzenesulfonamide, 4-amino-N-(3-methyl-1-phenyl-1H-pyrazol-5-yl) + water 9

Benzenesulfonamide, 4-amino-N-(4-methyl-N-2-thiazolyl) + 2-propanone 276 + water E257, 256-274

Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)- + ethanol 275, 276 + 1-ethenyl-2-pyrrolidinone polymer 276 + water E257, 256-274

Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-(aq) + calcium chloride 273 + hydrochloric acid 263, 264 + 2-hydroxy-1,2,3-propanetricarboxylic acid 271, 272 + magnesium chloride 273 + phosphoric acid 270 + phosphoric acid, disodium salt 265-269, 271, 272 + phosphoric acid, monoaammonium salt 273 + phosphoric acid, monopotassium salt 266-269 + phosphoric acid, monosodium salt 270 + potassium chloride 273 + sodium chloride 264, 270, 271, 273 + sulfuric acid, monododecyl ester, sodium salt 274

+ urea 273

Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-, monosilver salt + water 277-281

Benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-(aq), monosilver salt, (aq) + 4-morpholinepropanesulfonic acid 277 + 4-morpholinepropanesulfonic acid, sodium salt 277 + nitric acid 278-281 + nitric acid, potassium salt 277-281

Benzenesulfonamide, 4-amino-N-(4-methyl-N-2-thiazolyl)- + 2-propanone 238 + water E231, 232-237

Benzenesulfonamide, 4-amino-N-(4-methyl-N-2-thiazolyl)-(aq) + phosphoric acid, disodium salt 235, 237 + phosphoric acid, monopotassium salt 236, 237

Benzenesulfonamide, 4-amino-N-(methyl-N-2-thiazolyl)- + trichloromethane 218 + water 216, 217

Benzenesulfonamide, 4-amino-N-2-oxazolyl- + water 104

Benzenesulfonamide, 4-amino-N-(5-pentyl-1,3,4-thiadiazol-2-yl)-(aq) + 2-hydroxy-1,2,3-propanetricarboxylic acid 314 + phosphoric acid, disodium salt 314

Benzenesulfonamide, 4-amino-N-(1-phenyl-2,3-dimethyl-5-oxopyrazol-4-yl)- + water 11
<table>
<thead>
<tr>
<th><strong>Benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>+ trichloromethane</td>
</tr>
<tr>
<td>+ water</td>
</tr>
<tr>
<td><strong>Benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</strong></td>
</tr>
<tr>
<td>+ hydrochloric acid</td>
</tr>
<tr>
<td>+ 2-hydroxy-1,2,3-propanetricarboxylic acid</td>
</tr>
<tr>
<td><strong>Benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</strong></td>
</tr>
<tr>
<td>+ phosphoric acid, monopotassium</td>
</tr>
<tr>
<td><strong>Benzenesulfonamide, 4-amino-N-(5-propyl-1,3,4-thiadiazol-2-yl)-</strong></td>
</tr>
<tr>
<td>+ 2-hydroxy-1,2,3-propanetricarboxylic acid</td>
</tr>
<tr>
<td><strong>Benzenesulfonamide, 4-amino-N-1,3,4-thiadiazol-2-yl-</strong></td>
</tr>
<tr>
<td>+ water</td>
</tr>
<tr>
<td><strong>Benzenesulfonamide, 4-amino-N-2-thiazolyl-</strong></td>
</tr>
<tr>
<td>+ 2-butanol</td>
</tr>
<tr>
<td>+ cottonseed oil</td>
</tr>
<tr>
<td>+ ethanol</td>
</tr>
<tr>
<td>+ 2-ethoxyethanol</td>
</tr>
<tr>
<td>+ methylcyclohexanone</td>
</tr>
<tr>
<td>+ petrolatum (white)</td>
</tr>
<tr>
<td>+ 2-propanol</td>
</tr>
<tr>
<td>+ 2-propanone</td>
</tr>
<tr>
<td>+ sorbitan, (z)-2-octadecenoate (2:3)</td>
</tr>
<tr>
<td>+ trichloromethane</td>
</tr>
<tr>
<td>+ water</td>
</tr>
<tr>
<td><strong>Benzenesulfonamide, 4-amino-N-2-thiazolyl-, (aq)</strong></td>
</tr>
<tr>
<td>+ 4-amino-N-2-thiazolylbenzenesulfonamide-1-ethenyl-2-pyrrolidinone complex</td>
</tr>
<tr>
<td>+ aqueous phosphate buffer</td>
</tr>
<tr>
<td>+ calcium chloride</td>
</tr>
<tr>
<td>+ carbamic acid, ethyl ester</td>
</tr>
<tr>
<td>+ 3,7-dihydro-1,3,7-trimethyl-1H-purine-2,6-dione</td>
</tr>
<tr>
<td>+ ethanol</td>
</tr>
<tr>
<td>+ 1-ethenyl-2-pyrrolidinone polymer</td>
</tr>
<tr>
<td>+ Ext D and C</td>
</tr>
<tr>
<td>+ P.D and C</td>
</tr>
<tr>
<td>+ D-glucose</td>
</tr>
<tr>
<td>+ hydrochloric acid</td>
</tr>
<tr>
<td>+ 2-hydroxy-1,2,3-propanetricarboxylic acid</td>
</tr>
<tr>
<td>+ 2-hydroxy-1,2,3-propanetricarboxylic acid, sodium salt</td>
</tr>
<tr>
<td>+ Klucel MF</td>
</tr>
<tr>
<td>+ Methocel 65 HG</td>
</tr>
<tr>
<td>+ pectin</td>
</tr>
<tr>
<td>+ pectinic acid, sodium salt</td>
</tr>
<tr>
<td>+ phosphoric acid, disodium salt</td>
</tr>
<tr>
<td>+ 2-hydroxy-1,2,3-propanetricarboxylic acid, sodium salt</td>
</tr>
<tr>
<td>+ phosphoric acid, monopotassium salt</td>
</tr>
<tr>
<td>+ phosphoric acid, monosodium salt</td>
</tr>
<tr>
<td>+ potassium chloride</td>
</tr>
<tr>
<td>+ 1,2,3-propanetriol</td>
</tr>
<tr>
<td>+ sodium chloride</td>
</tr>
<tr>
<td>+ sorbitan, monodoecanoate, poly(oxy-1,2-ethanediyl)- derivs.</td>
</tr>
<tr>
<td>+ sorbitan, monohexadecanoate, poly(oxy-1,2-ethanediyl)- derivs.</td>
</tr>
<tr>
<td>+ sorbitan, monoacetate, poly(oxy-1,2-ethanediyl)- derivs.</td>
</tr>
<tr>
<td>+ sorbitan, monoctadecanoate, poly(oxy-1,2-ethanediyl)- derivs.</td>
</tr>
<tr>
<td>+ (3a,5b,7a,12a)-3,7,12-trihydroxy-24-octocholan-24-oic acid, monosodium salt</td>
</tr>
<tr>
<td>+ 2-[([(3a,5b,7a,12a)-3,7,12-trihydroxy-24-octocholan-24-yl]-amino)acetyl]aminoethanesulfonic acid, sodium salt</td>
</tr>
<tr>
<td>+ 2-[(3a,5b,7a,12a)-3,7,12-trihydroxy-24-octocholan-24-yl]-aminoethanesulfonic acid, monosodium salt</td>
</tr>
<tr>
<td>+ urea</td>
</tr>
<tr>
<td>Chemical Name</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Benzenesulfonamide, 4-amino-N-2-thiazolyl-2-pyrrolidinone, 1-ethenyl-homopolymer complex</td>
</tr>
<tr>
<td>1-ethenyl-2-pyrrolidinone homopolymer</td>
</tr>
<tr>
<td>Benzenesulfonamide, 4-amino-N-2-thiazolyl-, monohydrochloride</td>
</tr>
<tr>
<td>+ water</td>
</tr>
<tr>
<td>Benzenesulfonamide, 4-amino-N-2-thiazolyl-, monosodium salt</td>
</tr>
<tr>
<td>+ water</td>
</tr>
<tr>
<td>Benzenesulfonamide, 4-amino-N-2-thiazolyl-, monosodium salt, hexahydrate</td>
</tr>
<tr>
<td>+ water</td>
</tr>
<tr>
<td>Benzenesulfonamide, 4-amino-N-1H-1,2,4-triazol-3-yl-</td>
</tr>
<tr>
<td>+ water</td>
</tr>
<tr>
<td>Benzenesulfonamide, 4-amino-N-1H-1,2,4-triazol-4-yl-</td>
</tr>
<tr>
<td>+ water</td>
</tr>
<tr>
<td>Benzenesulfonamide, 4-(4,5-dihydro-3-methyl-5-oxo-1H-pyrazol-1-yl)-</td>
</tr>
<tr>
<td>+ water</td>
</tr>
<tr>
<td>N1-2-Benzothiazolylsulfanilamide</td>
</tr>
<tr>
<td>see benzenesulfonamide, 4-amino-N-2-benzothiazolyl-</td>
</tr>
<tr>
<td>Bis(4-amino-N-2-thiazolylbenzenesulfonamidato-NN,01)-cobalt, hydrate</td>
</tr>
<tr>
<td>see cobalt, bis(4-amino-N-2-thiazolylbenzenesulfonamidato-NN,01),</td>
</tr>
<tr>
<td>hydrate</td>
</tr>
<tr>
<td>Bis(4-amino-N-2-thiazolylbenzenesulfonamido-NN,01)-copper, hydrate</td>
</tr>
<tr>
<td>see copper, bis(4-amino-N-2-thiazolylbenzenesulfonamido-NN,01),</td>
</tr>
<tr>
<td>hydrate</td>
</tr>
<tr>
<td>Bis-(4-amino-N-2-thiazolylbenzenesulfonamidato-NN,O)-magnesium, hydrate</td>
</tr>
<tr>
<td>see magnesium, bis-4-amino-N-2-thiazolylbenzenesulfonamidato-NN,O),</td>
</tr>
<tr>
<td>hydrate, (T-4)-</td>
</tr>
<tr>
<td>Bis(4-amino-N-2-thiazolylbenzenesulfonamidato-NN,O)-manganese, hydrate</td>
</tr>
<tr>
<td>see manganese, bis-4-amino-N-2-thiazolylbenzenesulfonamidato-NN,O),</td>
</tr>
<tr>
<td>hydrate</td>
</tr>
<tr>
<td>Bis(4-amino-N-2-thiazolylbenzenesulfonamidato-NN,O)-nickel, hydrate</td>
</tr>
<tr>
<td>see nickel, bis-4-amino-N-2-thiazolylbenzenesulfonamidato-NN,O),</td>
</tr>
<tr>
<td>hydrate</td>
</tr>
<tr>
<td>(T-4)-Bis(4-Amino-N-2-thiazolylbenzenesulfonamidato-NN,O)-zinc</td>
</tr>
<tr>
<td>see zinc, bis(4-amino-N-2-thiazolylbenzenesulfonamidato-NN,O),</td>
</tr>
<tr>
<td>(T-4)-Bis(N1-2-thiazolylsulfanilamidato)zinc</td>
</tr>
<tr>
<td>see zinc, bis(4-amino-N-2-thiazolylbenzenesulfonamidato-NN,O),</td>
</tr>
<tr>
<td>Butanoic acid, 4-oxo-4-[[4-[(2-thiazolylamino)sulfonyl]phenyl]amino]-</td>
</tr>
<tr>
<td>+ 2-propanol</td>
</tr>
<tr>
<td>N1-(5-Butyl-1,3,4-thiadiazol-2-yl)sulfanilamide</td>
</tr>
<tr>
<td>see benzenesulfonamide, 4-amino-N-(5-butyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>Chemosept</td>
</tr>
<tr>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>Chemouag</td>
</tr>
<tr>
<td>see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)</td>
</tr>
<tr>
<td>Ciba 18,605-Ba</td>
</tr>
<tr>
<td>see benzenesulfonamide, 4-amino-N-(3-methyl-1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>Ciba 3753</td>
</tr>
<tr>
<td>see benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)-</td>
</tr>
<tr>
<td>Cibazol</td>
</tr>
<tr>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>Cobalt, bis(4-amino-N-2-thiazolylbenzenesulfonamidato-NN,01),</td>
</tr>
<tr>
<td>hydrate + hydrochloric acid + water</td>
</tr>
<tr>
<td>Colistatin</td>
</tr>
<tr>
<td>see butanoic acid, 4-oxo-4-[[4-[(2-thiazolylamino)sulfonyl]phenyl]amino]-</td>
</tr>
<tr>
<td>Copper, bis(4-amino-N-2-thiazolylbenzenesulfonamidato-NN,01),</td>
</tr>
<tr>
<td>hydrate + hydrochloric acid + water</td>
</tr>
<tr>
<td>Cremosuxidine</td>
</tr>
<tr>
<td>see butanoic acid, 4-oxo-4-[[4-[(2-thiazolylamino)sulfonyl]phenyl]amino]-</td>
</tr>
<tr>
<td>DB 90</td>
</tr>
<tr>
<td>see benzenesulfonamide, 1-amino-N-[5-(1,1′-dimethylethyl)-1,3,4-thiadiazol-2-yl]-</td>
</tr>
<tr>
<td>Depocid</td>
</tr>
<tr>
<td>see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>Depotsulfonamide</td>
</tr>
<tr>
<td>see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>System Index</td>
</tr>
<tr>
<td>--------------</td>
</tr>
<tr>
<td>N1,N4-Diacetyl-N1-(3,4-dimethyl-5-isoxazolyl)sulfanilamide</td>
</tr>
<tr>
<td>N1,N4-Diacetylsulfafurazole</td>
</tr>
<tr>
<td>N1,N4-Diacetylsulfametrole</td>
</tr>
<tr>
<td>N1,N4-Diacetylsulfisoxazole</td>
</tr>
<tr>
<td>N1,N4-Diacetylsulfamidoisoxazole</td>
</tr>
<tr>
<td>Diseptal A</td>
</tr>
<tr>
<td>Dorsulfan</td>
</tr>
<tr>
<td>Duatok</td>
</tr>
<tr>
<td>Dulana</td>
</tr>
<tr>
<td>Eftolon</td>
</tr>
<tr>
<td>Eleudron</td>
</tr>
<tr>
<td>Entusul</td>
</tr>
<tr>
<td>Estafilol</td>
</tr>
<tr>
<td>Etazole</td>
</tr>
<tr>
<td>Ethazol</td>
</tr>
<tr>
<td>Ethazole</td>
</tr>
<tr>
<td>N-[4-[[5-Ethyl-1,3,4-thiadiazol-2-yl]amino]sulfonyl]-phenyl]</td>
</tr>
<tr>
<td>4′-[[5-Ethyl-1,3,4-thiadiazol-2-yl]sulfamoyl]acetanilide</td>
</tr>
</tbody>
</table>
Firmazolo  
see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-

Gantanol  
see benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-

Gantrisin  
see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)

Gantrisin acetyl  
see acetamide, N-[4-(aminophenyl)sulfonyl]-N-(3,4-dimethyl-5-isoxazolyl)-

Gantrisona  
see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)

Gantrosan  
see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)

Globucid  
see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)

Globucinn  
see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)

Glyprothiazole  
see benzenesulfonamide, 4-amino-N-[S-(1-methylethyl)-1,3,4-thiadiazol-2-yl]-

1,4,7,10,13,16-Hexaoxacyclooctadecane compd. with 4-amino-N-(5-methyl-3-isoxazolyl)benzenesulfonamide (1:1)  
see benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-, compd. with 1,4,7,10,13,16-hexaoxacyclooctadecane

N1-Imidazol-2-ylsulfanilamide  
see benzenesulfonamide, 4-amino-NH-imidazol-2-yl-

Inamal  
see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-

IPTD  
see benzenesulfonamide, 4-amino-N-[5-(1-methylethyl)-1,3,4-thiadiazol-2-yl]-

Isarol  
see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-

Isoxamin  
see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)

Justamil  
see benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)-

Kaoxidin  
see butanoic acid, 4-oxo-4-[4-[(2-thiaxolylamino)sulfonyl]phenyl]-amino-

Kaoxidine  
see butanoic acid, 4-oxo-4-[4-[(2-thiaxolylamino)sulfonyl]phenyl]-amino-

Lipo-Gantrisin  
see acetamide, N-[4-(aminophenyl)sulfonyl]-N-(3,4-dimethyl-5-isoxazolyl)-

Lipo-Gantrisin acetyl  
see acetamide, N-[4-(aminophenyl)sulfonyl]-N-(3,4-dimethyl-5-isoxazolyl)-

Lucosil  
see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-

Magnesium, bis-4-amino-N-2-thiaxolylbensenesulfonamidato-NN,O)-, hydrate, (T-4)  
+ hydrochloric acid  
+ water  
210

Manganese, bis-4-amino-N-2-thiaxolylbensenesulfonamidato-NN,O)-, hydrate  
+ hydrochloric acid  
+ water  
211

Merian  
see benzenesulfonamide, 4-amino-N-[1-phenyl-1H-pyrazol-5-yl]-N-[4-[(4-Methoxy-1,2,5-thiadiazol-3-yl)amino]sulfonyl]-phenyl]-acetamide  
see acetamide, N-[4-[(4-methoxy-1,2,5-thiadiazol-3-yl)amino]-sulfonyl]-phenyl]-

N1-(4-Methoxy-1,2,5-thiadiazol-3-yl)sulfanilamide  
see benzenesulfonamide, 4-amino-N-(4-methoxy-1,2,5-thiadiazol-3-yl)-
<table>
<thead>
<tr>
<th>System Index</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nl-(4-Methoxy-1,3,4-thiadiazol-2-yl)sulfanilamide, monosilver salt (1+) salt</strong></td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-, monosilver salt</td>
</tr>
<tr>
<td><strong>N-[4-[[5-Methyl-3-isoxazolyl]amino[sulfonyl]phenyl]acetamide</strong></td>
<td>see acetamide, N-[4-[[5-methyl-3-isoxazolyl]amino][sulfonyl]-phenyl]-</td>
</tr>
<tr>
<td><strong>4'-[[5-Methyl-3-isoxazolyl]sulfamoyl]acetanilide</strong></td>
<td>see acetamide, N-[4-[[5-methyl-3-isoxazolyl]amino][sulfonyl]-phenyl]-</td>
</tr>
<tr>
<td><strong>Nl-(5-Methyl-3-isoxazolyl)sulfanilamide</strong></td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-</td>
</tr>
<tr>
<td><strong>p-(3-Methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonamide</strong></td>
<td>see benzenesulfonamide, 4-[(4,5-dihydro-3-methyl-5-oxo-1H-pyrazol-1-yl)-</td>
</tr>
<tr>
<td><strong>Nl-(3-Methyl-1-phenylpyrazol-5-yl)sulfanilamide</strong></td>
<td>see benzenesulfonamide, 4-amino-N-(3-methyl-1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td><strong>3-Methyl-1-(4-sulfamoylphenyl)-5-pyrazolone</strong></td>
<td>see benzenesulfonamide, 4-[(4,5-dihydro-3-methyl-5-oxo-1H-pyrazol-1-yl)-</td>
</tr>
<tr>
<td><strong>5-Methyl-3-sulfanilamidoisoxazole</strong></td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-</td>
</tr>
<tr>
<td><strong>2-Methyl-5-sulfanilamido-1,3,4-thiadiazole</strong></td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td><strong>4-Methyl-2-sulfanilamidotiazole</strong></td>
<td>see benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)-</td>
</tr>
<tr>
<td><strong>N-[4-[[5-Methyl-1,3,4-thiadiazol-2-yl]amino][sulfonyl][phenyl]acetamide</strong></td>
<td>see acetamide, N-[4-[[5-methyl-1,3,4-thiadiazol-2-yl]amino][sulfonyl][phenyl]-</td>
</tr>
<tr>
<td><strong>4'-[[5-Methyl-1,3,4-thiadiazol-2-yl]sulfamoyl]acetanilide</strong></td>
<td>see acetamide, N-[4-[[5-methyl-1,3,4-thiadiazol-2-yl]-amino][sulfonyl][phenyl]-</td>
</tr>
<tr>
<td><strong>Nl-(5-Methyl-1,3,4-thiadiazol-2-yl)sulfanilamide</strong></td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td><strong>N-[4-[[4-Methyl]-2-thiazolylamino][sulfonyl][phenyl]acetamide</strong></td>
<td>see acetamide, N-[4-[[4-methyl]-2-thiazolylamino][sulfonyl][phenyl]-</td>
</tr>
<tr>
<td><strong>Nl-(4-Methyl-2-thiazolyl)sulfanilamide</strong></td>
<td>see benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)-</td>
</tr>
<tr>
<td><strong>4'-[[4-Methyl-2-thiazolyl]sulfamoyl]acetanilide</strong></td>
<td>see acetamide, N-[4-[[4-methyl]-2-thiazolylamino][sulfonyl][phenyl]-</td>
</tr>
<tr>
<td><strong>Microsul</strong></td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td><strong>Microtan pirazolo</strong></td>
<td>see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td><strong>Nl-Monoacetyl sulfisoxazole</strong></td>
<td>see acetamide, N-[4-[[aminophenyl][sulfonyl]]-N-(3,4-dimethyl-5-isoxazolyl)-</td>
</tr>
<tr>
<td><strong>Neazolin</strong></td>
<td>see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-</td>
</tr>
<tr>
<td><strong>Neodisept</strong></td>
<td>see benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)-</td>
</tr>
<tr>
<td><strong>Neostrpsan</strong></td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td><strong>Neoxazol</strong></td>
<td>see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-</td>
</tr>
<tr>
<td><strong>Nickel, bis(4-amino-N-2-thiazolyl-benzenesulfonamidato-NN,0)^+ hydrochloric acid + water 212 + water 212</strong></td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-, monosodium salt</td>
</tr>
<tr>
<td><strong>Norientan-S</strong></td>
<td>see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-</td>
</tr>
<tr>
<td><strong>Norsulfasol</strong></td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td><strong>Norsulfazole sodium</strong></td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-, monosodium salt</td>
</tr>
<tr>
<td><strong>Norsulfazole soluble</strong></td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-, monosodium salt</td>
</tr>
<tr>
<td>Drug Name</td>
<td>See Benzenesulfonamide, 4-amino-N-</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Notefazol</td>
<td>2-thiazolyl-</td>
</tr>
<tr>
<td>Novoseptale</td>
<td>4-amino-N-(4-methyl-2-thiazolyl)-</td>
</tr>
<tr>
<td>Nuprin</td>
<td>4-amino-N-(4,5-dimethyl-2-oxazolyl)-</td>
</tr>
<tr>
<td>Orisul</td>
<td>1-phenyl-1H-pyrazol-5-yl)</td>
</tr>
<tr>
<td>Oxasulfa</td>
<td>4-amino-N-(4,5-dimethyl-2-oxazolyl)-</td>
</tr>
<tr>
<td>4-Oxo-4-[[4-([2-thiaxolylamino)sulfonyl]phenyl]amino]-butanoic acid</td>
<td>see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>N1-2-Oxazolylsulfanilamide</td>
<td>see benzenesulfonamide, 4-amino-N-2-oxazolyl-</td>
</tr>
<tr>
<td>Paidazolo</td>
<td>1-phenyl-1H-pyrazol-5-yl)</td>
</tr>
<tr>
<td>Pancid</td>
<td>3,4-dimethyl-5-isoxazolyl)</td>
</tr>
<tr>
<td>PASIT</td>
<td>4-amino-N-[5-(1-methylethyl)-1,3,4-thiadiazol-2-yl]-</td>
</tr>
<tr>
<td>N1-(1-Phenylpyrazol-5-yl)sulfanilamide</td>
<td>see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>2-Phenyl-3-sulfanilamidopyrazole</td>
<td>see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>Planomide</td>
<td>4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>Plisulfan</td>
<td>4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>Poliseptil</td>
<td>4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>N1-(5-Propyl-1,3,4-thiadiazol-2-yl)sulfanilamide</td>
<td>see benzenesulfonamide, 4-amino-N-(5-propyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>N1-(5-Isopropyl-1,3,4-thiadiazol-2-yl)sulfanilamide</td>
<td>see benzenesulfonamide, 4-amino-N-[5-(1-methylethyl)-1,3,4-thiadiazol-2-yl]-</td>
</tr>
<tr>
<td>Radonil</td>
<td>5-methyl-3-isoxazolyl)</td>
</tr>
<tr>
<td>Raziosulfa</td>
<td>1-phenyl-1H-pyrazol-5-yl)</td>
</tr>
<tr>
<td>Rolsul</td>
<td>4-amino-N-(3,4-dimethyl-5-isoxazolyl)-</td>
</tr>
<tr>
<td>Roxosul</td>
<td>4-amino-N-(5-methyl-2-thiazolyl)-</td>
</tr>
<tr>
<td>RP 146</td>
<td>4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>RP 2145</td>
<td>4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>RP 2254</td>
<td>4-amino-N-[5-(1-methylethyl)-1,3,4-thiadiazol-2-yl]-</td>
</tr>
<tr>
<td>Rufol</td>
<td>4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>Sanotiazol</td>
<td>4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>SETD</td>
<td>4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>Sethadil</td>
<td>4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
</tbody>
</table>
Silver sulfamethiazole
  see benzenesulfonamide, 4-aminoo-N-(5-methyl-
    1,3,4-thiadiazol-2-yl)-
Silver sulfamethizole
  see benzenesulfonamide, 4-aminoo-N-(5-methyl-
    1,3,4-thiadiazol-2-yl)-
Sinomin
  see benzenesulfonamide, 4-aminoo-N-(5-methyl-3-isoxazolyl)-
Sodium norsulfazole
  see benzenesulfonamide, 4-aminoo-N-2-thiazolyl-, monosodium salt
Sodium 2-sulfanilamidothiazole
  see benzenesulfonamide, 4-aminoo-N-2-thiazolyl-, monosodium salt
Sodium sulfathiazole
  see benzenesulfonamide, 4-aminoo-N-2-thiazolyl-, monosodium salt
Soluble sulfathiazole
  see benzenesulfonamide, 4-aminoo-N-2-thiazolyl-, monosodium salt
Soluthiazamide
  see benzenesulfonamide, 4-aminoo-N-2-thiazolyl-, monosodium salt
Staphylamid
  see benzenesulfonamide, 4-aminoo-N-(4-methyl-2-thiazolyl)-
Streptosithiazole
  see benzenesulfonamide, 4-aminoo-N-2-thiazolyl-
  2-(N4-Succinylsulfanilamido)thiazole
  see butanoic acid, 4-oxo-4-[[4-([(2-thiaxolylamino)sulfonyl]phenyl)amino]-
Succinylsulfathiazole
  see butanoic acid, 4-oxo-4-[[4-[(2-thiaxolylamino)sulfonyl]phenyl)amino]-
Sulfapan
  see benzenesulfonamide, 4-aminoo-N-(5-methyl-
    1,3,4-thiadiazol-2-yl)-
Sul-Spansion
  see benzenesulfonamide, 4-aminoo-N-(5-methyl-3-isoxazolyl)-
Sul-Spantab
  see benzenesulfonamide, 4-aminoo-N-(5-methyl-
    1,3,4-thiadiazol-2-yl)-
Sulanilamidothiazole
  see benzenesulfonamide, 4-aminoo-N-2-thiazolyl-
Sulbio
  see benzenesulfonamide, 4-aminoo-N-(3,4-dimethyl-5-isoxazolyl)-
Sulfa-Perlongit
  see benzenesulfonamide, 4-aminoo-N-(5-methyl-
    1,3,4-thiadiazol-2-yl)-
Sulfabenzothiazole
  see benzenesulfonamide, 4-aminoo-N-2-benzothiazolyl-
Sulfabid
  see benzenesulfonamide, 4-aminoo-N-(1-phenyl-1H-pyrazol-5-yl)-
Sulfabutin
  see benzenesulfonamide, 4-aminoo-N-(4,5-dimethyl-2-oxazolyl)-
Sulfadigesin
  see butanoic acid, 4-oxo-4-[[4-[(2-thiaxolylamino)sulfonyl]phenyl)amino]-
Sulfadimethylisoxazole
  see benzenesulfonamide, 4-aminoo-N-(3,4-dimethyl-5-isoxazolyl)-
Sulfadimethoxazole
  see benzenesulfonamide, 4-aminoo-N-(4,5-dimethyl-2-oxazolyl)-
Sulfathidol
  see benzenesulfonamide, 4-aminoo-N-(5-methyl-
    1,3,4-thiadiazol-2-yl)-
Sulfathethylthiadiazole
  see benzenesulfonamide, 4-aminoo-N-(5-methyl-
    1,3,4-thiadiazol-2-yl)-
Sulfafurazole
  see benzenesulfonamide, 4-aminoo-N-(3,4-dimethyl-5-isoxazolyl)-
Sulfagan
  see benzenesulfonamide, 4-aminoo-N-(3,4-dimethyl-5-isoxazolyl)-
<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>System Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfaisopropylthiadiazole</td>
<td>see benzenesulfonamide, 4-amino-N-[5-(1-methylethyl)-1,3,4-thiadiazol-2-yl]-</td>
</tr>
<tr>
<td>Sulfaisoxazole</td>
<td>see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-</td>
</tr>
<tr>
<td>Sulfamethalazol</td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-</td>
</tr>
<tr>
<td>Sulfamethiazole</td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>Sulfamethizole N4-acetate</td>
<td>see acetamide, N-[4-[[5-methyl-1,3,4-thiadiazol-2-yl]amino]-sulfonyl]-phenyl]-</td>
</tr>
<tr>
<td>Sulfamethizole</td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>Sulfamethoxazole</td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-</td>
</tr>
<tr>
<td>Sulfamethylenaphazol</td>
<td>see benzenesulfonamide, 4-amino-N-(3-methyl-1-phenyl-IH-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>Sulfamethylenaphazol</td>
<td>see benzenesulfonamide, 4-amino-N-(3-methyl-1-phenyl-IH-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>Sulfamethylenaphazol</td>
<td>see benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)-</td>
</tr>
<tr>
<td>Sulfametrole</td>
<td>see benzenesulfonamide, 4-amino-N-(4-methoxy-1,2,5-thiadiazol-3-yl)-</td>
</tr>
<tr>
<td>Sulfamoxolum</td>
<td>see benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)-</td>
</tr>
<tr>
<td>5-Sulfanilamido-3,4-dimethylisoxazole</td>
<td>see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-</td>
</tr>
<tr>
<td>2-Sulfanilamido-5-ethylthiadiazole</td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>2-Sulfanilamidoimidazol</td>
<td>see benzenesulfonamide, 4-amino-N-1H-imidazol-2-yl-</td>
</tr>
<tr>
<td>2-Sulfanilamido-5-isopropylthiadiazole</td>
<td>see benzenesulfonamide, 4-amino-N-[5-(1-methylethyl)-1,3,4-thiadiazol-2-yl]-</td>
</tr>
<tr>
<td>3-Sulfanilamido-5-methylisoxazole</td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-</td>
</tr>
<tr>
<td>2-Sulfanilamido-4-methylthiazole</td>
<td>see benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)-</td>
</tr>
<tr>
<td>5-Sulfanilamido-1-phenylpyrazole</td>
<td>see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>2-(Sulfanilylamino)thiazole</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>2-Sulfanilamidothiazole</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>2-Sulfanilamidothiazole sodium salt</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-, monosodium salt</td>
</tr>
<tr>
<td>3-Sulfanilamido-1,2,4-triazole</td>
<td>see benzenesulfonamide, 4-amino-N-1H-1,2,4-triazol-3-yl-</td>
</tr>
<tr>
<td>4-Sulfanilamido-1,2,4-triazole</td>
<td>see benzenesulfonamide, 4-amino-N-1H-1,2,4-triazol-4-yl-</td>
</tr>
<tr>
<td>2-Sulfanilamidoxazol</td>
<td>see benzenesulfonamide, 4-amino-N-2-oxazolyl-</td>
</tr>
<tr>
<td>Sulfano</td>
<td>see benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)-</td>
</tr>
<tr>
<td>Sulfaphenazol</td>
<td>see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>Sulfaphenazol</td>
<td>see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>Sulfaphenazon</td>
<td>see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>Sulfaphenylpipazol</td>
<td>see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>Sulfaphenylpyrazol</td>
<td>see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>Sulfapyrazol</td>
<td>see benzenesulfonamide, 4-amino-N-(3-methyl-1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>Term</td>
<td>See:</td>
</tr>
<tr>
<td>--------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sulfasol</td>
<td>see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-</td>
</tr>
<tr>
<td>Sulfasuccidin</td>
<td>see benzenesulfonamide, 4-amino-N-([4-[[2-thiazolylamino)sulfonyl]-phenyl]amino)-</td>
</tr>
<tr>
<td>Sulfasuccidine</td>
<td>see benzenesulfonamide, 4-amino-N-([4-[[2-thiazolylamino)sulfonyl]-phenyl]amino)-</td>
</tr>
<tr>
<td>Sulfasuccinil</td>
<td>see benzenesulfonamide, 4-amino-N-([4-[[2-thiazolylamino)sulfonyl]-phenyl]amino)-</td>
</tr>
<tr>
<td>Sulfasuccithiazole</td>
<td>see benzenesulfonamide, 4-amino-N-([4-[[2-thiazolylamino)sulfonyl]-phenyl]amino)-</td>
</tr>
<tr>
<td>Sulfasuxidine</td>
<td>see benzenesulfonamide, 4-amino-N-([4-[[2-thiazolylamino)sulfonyl]-phenyl]amino)-</td>
</tr>
<tr>
<td>Sulfathiazole sodium</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-, monosodium salt</td>
</tr>
<tr>
<td>Sulfathiazole</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>2-Sulfathiazole</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>Sulfavigor</td>
<td>see benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)-</td>
</tr>
<tr>
<td>Sulfazamet</td>
<td>see benzenesulfonamide, 4-amino-N-(3-methyl-1-phenyl-H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>Sulfazin</td>
<td>see acetamide, N-([4-aminophenyl)sulfonyl]-N-(3,4-dimethyl-5-isoxazolyl)-</td>
</tr>
<tr>
<td>Sulfazol</td>
<td>see benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)-</td>
</tr>
<tr>
<td>Sulfazole</td>
<td>see benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)-</td>
</tr>
<tr>
<td>Sulfenterone</td>
<td>see butanoic acid, 4-oxo-4-[[4-[[2-thiazolylamino)sulfonyl]-phenyl]amino]-</td>
</tr>
<tr>
<td>Sulfethidiole</td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)</td>
</tr>
<tr>
<td>Sulfisomezole-N4-acetate</td>
<td>see acetamide, N-4-[[5-methyl-3-isoxazolyl]amino)sulfonyl]-phenyl)-</td>
</tr>
<tr>
<td>Sulfisomezole</td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-</td>
</tr>
<tr>
<td>Sulfisoxazole acetyl</td>
<td>see acetamide, N-([4-aminophenyl)sulfonyl]-N-(3,4-dimethyl-5-isoxazolyl)-</td>
</tr>
<tr>
<td>Sulfisoxazole dialamine</td>
<td>see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-</td>
</tr>
<tr>
<td>Sulfmidil</td>
<td>see benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)-</td>
</tr>
<tr>
<td>Sulfocerol</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>2-Sulfocerol</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>Sulfono</td>
<td>see benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)-</td>
</tr>
<tr>
<td>Sulfstat</td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>Sulfuroxide</td>
<td>see benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)-</td>
</tr>
<tr>
<td>Sulfurine</td>
<td>see benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)-</td>
</tr>
<tr>
<td>Sulfoxazole</td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>Sulphafuazole</td>
<td>see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-</td>
</tr>
<tr>
<td>Chemical Name</td>
<td>Full Name</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Sulphaphenazole</td>
<td>see benzenesulfonamide, 4-amino-N-(1-phenyl-1H-pyrazol-5-yl)-</td>
</tr>
<tr>
<td>Sulphmethoxazole</td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-3-isoxazolyl)-</td>
</tr>
<tr>
<td>Sulzol</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>Tardamide</td>
<td>see benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)-</td>
</tr>
<tr>
<td>Tardamid</td>
<td>see benzenesulfonamide, 4-amino-N-(4,5-dimethyl-2-oxazolyl)-</td>
</tr>
<tr>
<td>Tetracid</td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>Thiacoccing</td>
<td>see benzenesulfonamide, 4-amino-N-(2-thiazolyl)-</td>
</tr>
<tr>
<td>Thiacyl</td>
<td>see butanoic acid, 4-oxo-4-[[4-(2-thiazolylamino)sulfonyl]-phenyl]amino]-</td>
</tr>
<tr>
<td>1,2,5-Thiadiazole, acetamide derivative</td>
<td>see acetamide, N-((4-aminophenyl)sulfonyl)-N-(4-methoxy-1,2,5-thiadiazol-3-yl)-</td>
</tr>
<tr>
<td>1,2,5-Thiadiazole, benzenesulfonamide derivative</td>
<td>see benzenesulfonamide, 4-amino-N-(4-methoxy-1,2,5-thiadiazol-3-yl)-</td>
</tr>
<tr>
<td>Thiasin</td>
<td>see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)-</td>
</tr>
<tr>
<td>Thiasulfol</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>Thiazamide</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>N1-4-Thiazolin-2-ylidenesulfanilamide</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>N-[4-[(2-Thiazolylamino)sulfonyl]phenyl]acetamide</td>
<td>see acetamide, N-[4-[(2-thiazolylamino)sulfonyl]phenyl]-</td>
</tr>
<tr>
<td>4'-(2-Thiazoylsulfamoyl)acetanilide</td>
<td>see acetamide, N-[4-[(2-thiazolylamino)sulfonyl]phenyl]-</td>
</tr>
<tr>
<td>4'-(2-Thiazoylsulfamoyl)succinanilic acid</td>
<td>see butanoic acid, 4-oxo-4-[[4-(2-thiazolylamino)sulfonyl]-phenyl]amino]-</td>
</tr>
<tr>
<td>N1-(2-Thiazolyl)sulfanilamide</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>N1-2-Thiazolylsulfanilamide</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazolyl-</td>
</tr>
<tr>
<td>N1-2-Thiazolylsulfanilamide, monosodium salt</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazoyl-, monosodium salt</td>
</tr>
<tr>
<td>(N1-2-Thiazolylsulfanilamido)sodium</td>
<td>see benzenesulfonamide, 4-amino-N-2-thiazoyl-, monosodium salt</td>
</tr>
<tr>
<td>p-2-Thiazoylsulflamylsuccinanilic acid</td>
<td>see butanoic acid, 4-oxo-4-[[4-(2-thiazolylamino)sulfonyl]-phenyl]amino]-</td>
</tr>
<tr>
<td>Thidicur</td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>Thiosulfil</td>
<td>see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>Toriseptin M</td>
<td>see benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)-</td>
</tr>
<tr>
<td>N1-4H-1,2,4-Triazol-4-ylsulfanilamide</td>
<td>see benzenesulfonamide, 4-amino-N-1H-1,2,4-triazol-4-yl-</td>
</tr>
<tr>
<td>Uleron</td>
<td>see benzenesulfonamide, 1-amino-N-[5-([1,1 dimethylethyl]-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>Uliran</td>
<td>see benzenesulfonamide, 1-amino-N-[5-([1,1 dimethylethyl]-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>Uliron</td>
<td>see benzenesulfonamide, 1-amino-N-[5-([1,1 dimethylethyl]-1,3,4-thiadiazol-2-yl)-</td>
</tr>
<tr>
<td>Ulraseptal</td>
<td>see benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)-</td>
</tr>
</tbody>
</table>
Utraseptyl
  see benzenesulfonamide, 4-amino-N-(4-methyl-2-thiazolyl)-
Ultrasul
  see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-
Unisulf
  see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)
Uritrisin
  see benzenesulfonamide, 4-amino-N-(3,4-dimethyl-5-isoxazolyl)
Urocydal
  see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-
Urodiaton
  see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-
Urolucosil
  see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-
Urosulfin
  see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-

Vesulong
  see benzenesulfonamide, 4-amino-N-(3-methyl-1-phenyl-1H-pyrazol-5-yl)-
VK 53
  see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-
VK 55
  see benzenesulfonamide, 4-amino-N-(5-methyl-1,3,4-thiadiazol-2-yl)-
Vk 57
  see benzenesulfonamide, 4-amino-N-[5-(1-methylethyl)-1,3,4-thiadiazol-2-yl]-

Wintrazole
  see benzenesulfonamide, 4-amino-N-2-thiazolyl-

Zinc, bis(4-amino-N-2-thiazolylbenzenesulfamido-NN,O)-, (T-4)- + water 215
Zn(II) sulfathiazole
  see zinc, bis(4-amino-N-2-thiazolylbenzenesulfamido-NN,O)-, (T-4)-
<table>
<thead>
<tr>
<th>REGISTRY NUMBER INDEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-70-4</td>
</tr>
<tr>
<td>50-99-7</td>
</tr>
<tr>
<td>51-79-6</td>
</tr>
<tr>
<td>56-40-6</td>
</tr>
<tr>
<td>56-81-5</td>
</tr>
<tr>
<td>57-13-6</td>
</tr>
<tr>
<td>57-60-1</td>
</tr>
<tr>
<td>58-08-2</td>
</tr>
<tr>
<td>60-29-7</td>
</tr>
<tr>
<td>61-73-4</td>
</tr>
<tr>
<td>64-17-5</td>
</tr>
<tr>
<td>67-56-1</td>
</tr>
<tr>
<td>67-63-0</td>
</tr>
<tr>
<td>67-64-1</td>
</tr>
<tr>
<td>67-66-3</td>
</tr>
<tr>
<td>69-79-4</td>
</tr>
<tr>
<td>71-23-8</td>
</tr>
<tr>
<td>71-36-3</td>
</tr>
<tr>
<td>71-41-0</td>
</tr>
<tr>
<td>71-43-2</td>
</tr>
<tr>
<td>72-14-0</td>
</tr>
<tr>
<td>77-92-9</td>
</tr>
<tr>
<td>78-92-2</td>
</tr>
<tr>
<td>80-34-2</td>
</tr>
<tr>
<td>80-74-0</td>
</tr>
<tr>
<td>87-78-5</td>
</tr>
<tr>
<td>94-19-9</td>
</tr>
<tr>
<td>110-80-5</td>
</tr>
<tr>
<td>111-87-5</td>
</tr>
<tr>
<td>112-30-1</td>
</tr>
<tr>
<td>116-43-8</td>
</tr>
<tr>
<td>127-69-5</td>
</tr>
<tr>
<td>127-76-4</td>
</tr>
<tr>
<td>141-78-6</td>
</tr>
<tr>
<td>144-33-2</td>
</tr>
<tr>
<td>144-55-8</td>
</tr>
<tr>
<td>144-74-1</td>
</tr>
<tr>
<td>144-82-1</td>
</tr>
<tr>
<td>145-42-6</td>
</tr>
<tr>
<td>151-21-3</td>
</tr>
<tr>
<td>361-09-1</td>
</tr>
<tr>
<td>497-19-8</td>
</tr>
<tr>
<td>515-59-3</td>
</tr>
<tr>
<td>535-65-9</td>
</tr>
<tr>
<td>562-08-9</td>
</tr>
<tr>
<td>723-46-6</td>
</tr>
<tr>
<td>723-47-7</td>
</tr>
<tr>
<td>729-99-7</td>
</tr>
<tr>
<td>852-19-7</td>
</tr>
<tr>
<td>877-24-7</td>
</tr>
<tr>
<td>1037-51-0</td>
</tr>
<tr>
<td>1132-61-2</td>
</tr>
<tr>
<td>1310-51-0</td>
</tr>
<tr>
<td>1331-22-2</td>
</tr>
<tr>
<td>1694-09-2</td>
</tr>
<tr>
<td>Registry Number</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>4206-74-0</td>
</tr>
<tr>
<td>6138-01-8</td>
</tr>
<tr>
<td>7447-40-7</td>
</tr>
<tr>
<td>7558-80-7</td>
</tr>
<tr>
<td>7664-38-2</td>
</tr>
<tr>
<td>7722-76-1</td>
</tr>
<tr>
<td>7757-70-1</td>
</tr>
<tr>
<td>7786-30-3</td>
</tr>
<tr>
<td>8007-43-0</td>
</tr>
<tr>
<td>8032-32-4</td>
</tr>
<tr>
<td>9000-69-5</td>
</tr>
<tr>
<td>9003-39-8</td>
</tr>
<tr>
<td>9004-64-2</td>
</tr>
<tr>
<td>9004-65-3</td>
</tr>
<tr>
<td>9005-64-5</td>
</tr>
<tr>
<td>9005-65-6</td>
</tr>
<tr>
<td>9005-66-7</td>
</tr>
<tr>
<td>9049-37-0</td>
</tr>
<tr>
<td>10043-52-4</td>
</tr>
<tr>
<td>11006-55-6</td>
</tr>
<tr>
<td>12286-43-0</td>
</tr>
<tr>
<td>13269-73-3</td>
</tr>
<tr>
<td>16806-29-4</td>
</tr>
<tr>
<td>17103-46-7</td>
</tr>
<tr>
<td>17103-50-3</td>
</tr>
<tr>
<td>17103-51-4</td>
</tr>
<tr>
<td>17103-53-6</td>
</tr>
<tr>
<td>17455-13-9</td>
</tr>
<tr>
<td>18607-98-2</td>
</tr>
<tr>
<td>21312-10-7</td>
</tr>
<tr>
<td>23325-73-7</td>
</tr>
<tr>
<td>24342-31-2</td>
</tr>
<tr>
<td>25322-68-3</td>
</tr>
<tr>
<td>26566-61-0</td>
</tr>
<tr>
<td>32909-92-5</td>
</tr>
<tr>
<td>35943-12-5</td>
</tr>
<tr>
<td>39719-87-4</td>
</tr>
<tr>
<td>51203-19-1</td>
</tr>
<tr>
<td>51203-20-4</td>
</tr>
<tr>
<td>51543-31-8</td>
</tr>
<tr>
<td>51543-32-9</td>
</tr>
<tr>
<td>51732-39-9</td>
</tr>
<tr>
<td>53081-02-0</td>
</tr>
<tr>
<td>65177-07-3</td>
</tr>
<tr>
<td>71119-13-6</td>
</tr>
<tr>
<td>71119-15-8</td>
</tr>
<tr>
<td>71119-16-9</td>
</tr>
<tr>
<td>71119-22-7</td>
</tr>
<tr>
<td>71119-25-0</td>
</tr>
<tr>
<td>71119-27-2</td>
</tr>
<tr>
<td>Registry Number</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>71119-29-4</td>
</tr>
<tr>
<td>71119-30-7</td>
</tr>
<tr>
<td>71119-31-8</td>
</tr>
<tr>
<td>71119-32-9</td>
</tr>
<tr>
<td>71119-42-1</td>
</tr>
<tr>
<td>79962-97-3</td>
</tr>
<tr>
<td>84812-76-0</td>
</tr>
<tr>
<td>84812-77-1</td>
</tr>
<tr>
<td>84812-78-2</td>
</tr>
<tr>
<td>84930-17-6</td>
</tr>
<tr>
<td>84930-18-7</td>
</tr>
<tr>
<td>86729-21-7</td>
</tr>
<tr>
<td>86729-22-8</td>
</tr>
</tbody>
</table>

Page numbers preceded by E refer to evaluation texts whereas page numbers not preceded by E refer to compiled tables.
AUTHOR INDEX

Aimonetto, S. 162, 163
Alexander, K. S. E64, 81, 82, 84-88
Allinne, M. 115, 220, E231, 233, E239, 241, E257, 258,
282, 290, 302
Alric, R. 272, 310-315
Anderson, G. W. 1, 12, 13, E14, 16, 104, 107-108, 316
Aoki, M. 2, 5, 8, E14, 17, 28, 55, 65, 74, 93,
E110-E112, 131, 158, 192
Arita, T. E64, 83, 90, 275, 276
Avico, U. 145
Badawi, A. A. E110-E112, 138, 206
Bandelin, F. J. 72, 76, 79, 99, 268, 273, 286, 286, 288, E289,
297, 300, 307, 309
Barber, H. J. 195, 196
Basu, U. P. E110, E111, 123
Becher, R. E110, E111, 120, 144, 164, 178, 179
Becker, C. H. 200-202
Benditt, E. J. 152, 225
Bergeim, F. H. E110, E111, 113, 186, 207
Bennardo, P. D. E110-E112, 133, 170, 190
Bertazzoli, C. 6
Bevan, H. G. L. 142, 222
Bhattacharyya, R. E110, E111, 123
Biamonte, A. R. 79, 98
Blanchard, K. C. 216, 249
Bratton, A. C. 216, 246, 249
Brodin, A. 264, 270, 271
Buogo, A. 6
Burlage, H. M. 187, 230
Busse, L. W. 146
Cavazutti, G. 145
Chrelashvili, M. V. 210-212
Ciceri, C. 6
Clark, W. G. E110, E111, 117, 213
Czettsch-Lindenwald, H. 80, 180-182
Damsma, J. E. 29, 63, 159, 229, 252, 254, 269, 287
Di Francesco, R. 145
Dolique, R. 171, 172
Dubois, S. E110-E112, 136, 166, 167
Durel, M. P. E110, E111, 115, 220, E231, 233, E239, 241,
E257, 258, 282, 290, 302
Eisen, H. 46, 89, 189
Ejima, A. 3, 22, 68, 263
El Sabbagh, H. 30, 31
El-Sayed, A. A. E110-E112, 138, 206
English, J. P. 11, E110, E111, 114, 219, E231, 232, E239,
240, 250, 251, 256, 317
Faith, H. E. 1, 12, 13, E14, 16, 104, 107, 109, 316
Foda, A. 30, 31
Foucault, J. 171, 172
Fox, Ch. L., Jr. 215
Fox, P. L. 215
Friesen, W. T. 29, 63, 159, 229, 252, 254, 269, 287
Frisck, A. R. 153, 154, 228
Garcia Onandia, A. 143
Gasco, M. R. 162, 163
Ghanem, A. E14, 20, 30, 31, 37-42
Chione, M. 6
Goto, S. 262
Grady, L. T. 91, 100
Gupta, M. 146
Gusyakov, V. P. E110-E112, 129, 183-185, 198
<table>
<thead>
<tr>
<th>Author</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gutierrez, F. H.</td>
<td>194, 238</td>
</tr>
<tr>
<td>Hagerman, G.</td>
<td>153, 154, 228</td>
</tr>
<tr>
<td>Hamlin, W. E.</td>
<td>105</td>
</tr>
<tr>
<td>Hanano, M.</td>
<td>E64, 67, E110-E112, 139, E257, 261</td>
</tr>
<tr>
<td>Hawking, F.</td>
<td>149</td>
</tr>
<tr>
<td>Hays, S. E.</td>
<td>91, 100</td>
</tr>
<tr>
<td>Hekster, Ch. A.</td>
<td>62, 75, 97, 101, 253, 255, 299, 308</td>
</tr>
<tr>
<td>Hekster, Y. A.</td>
<td>29, 63, 159, 229, 252, 254, 269, 287</td>
</tr>
<tr>
<td>Helander, S.</td>
<td>153, 154, 228</td>
</tr>
<tr>
<td>Higuchi, T.</td>
<td>E110-E112, 124, 146, 175</td>
</tr>
<tr>
<td>Higuchi, W. I.</td>
<td>133, 170, 190</td>
</tr>
<tr>
<td>Hirano, M.</td>
<td>26, 32, 35, 61</td>
</tr>
<tr>
<td>Hiura, M.</td>
<td>69, 77, 78</td>
</tr>
<tr>
<td>Holz, E.</td>
<td>143</td>
</tr>
<tr>
<td>Holz, S.</td>
<td>143</td>
</tr>
<tr>
<td>Ibraheem, Y.</td>
<td>E14, 20, 37-42</td>
</tr>
<tr>
<td>Ichihashi, T.</td>
<td>26, 32, 61</td>
</tr>
<tr>
<td>Inoue, T.</td>
<td>3, 22, 68, 263</td>
</tr>
<tr>
<td>Ito, K.</td>
<td>E110-E112, 128, 130</td>
</tr>
<tr>
<td>Jarowski, C. I.</td>
<td>E14, E15, 21, 23, 25, 34, 44</td>
</tr>
<tr>
<td>Kamada, A.</td>
<td>2, 5, 8, E14, 17, 18, 28, 55, 56, 59, 60, 65, 93, 102, 103, E110-E112, 131, 135, 158, 192, 193, 217, 218, 247, 248</td>
</tr>
<tr>
<td>Kaneniwa, N.</td>
<td>E64, 66, 67, E110-E112, 137, 139, E257, 259-261, 274</td>
</tr>
<tr>
<td>Kanke, M.</td>
<td>E110-E112, 134</td>
</tr>
<tr>
<td>Kawata, M.</td>
<td>262</td>
</tr>
<tr>
<td>Kedvessy, G.</td>
<td>E110-E112, 141, 203-205</td>
</tr>
<tr>
<td>Khamam, M. N.</td>
<td>80, 180-182</td>
</tr>
<tr>
<td>King, R. H.</td>
<td>91, 100</td>
</tr>
<tr>
<td>Kitao, K.</td>
<td>E14, 18, 56, 59, 60, 102, 103, E110-E112, 135, 193, 217, 218, 247, 248</td>
</tr>
<tr>
<td>Klein, H. R.</td>
<td>91, 100</td>
</tr>
<tr>
<td>Komatsu, M.</td>
<td>262</td>
</tr>
<tr>
<td>Kubo, K.</td>
<td>E14, 18, 56, 59, 60, 102, 103, E110-E112, 135, 193, 217, 218, 247, 248</td>
</tr>
<tr>
<td>Kuhnert-Brandstatter, M.</td>
<td>106, 107, E110-E112, 125, 156, 160, 188</td>
</tr>
<tr>
<td>Kutna, I. M.</td>
<td>E110-E112, 129, 183-185, 198</td>
</tr>
<tr>
<td>Lach, J. L.</td>
<td>E110-E112, 124, 175</td>
</tr>
<tr>
<td>Langecker, H.</td>
<td>E110-E112, 121, 155, E289, 291, 292, 296, 303</td>
</tr>
<tr>
<td>Lazarus, J. H.</td>
<td>E14, E15, 21, 23, 25, 34, 44</td>
</tr>
<tr>
<td>Levitan, N. I.</td>
<td>E110, E111, 117, 213</td>
</tr>
<tr>
<td>Lelya, S.</td>
<td>E110, E111, 120, 144, 164, 178, 179</td>
</tr>
<tr>
<td>Likholt, N. M.</td>
<td>E110-E112, 127, 129, 161, 163-185, 198</td>
</tr>
<tr>
<td>Lott, W. A.</td>
<td>E110, E111, 113, 186, 207</td>
</tr>
<tr>
<td>Mader, W. J.</td>
<td>91, 100</td>
</tr>
<tr>
<td>Malesh, W.</td>
<td>72, 76, 96, 99, 268, 273, 286, 288, E289, 297, 300, 309</td>
</tr>
<tr>
<td>Marson, H. W.</td>
<td>1, 12, 13, E14, 16, 104, 107, 109, 316</td>
</tr>
<tr>
<td>Martinek, A.</td>
<td>106, 107, E110-E112, 125, 156, 160, 188</td>
</tr>
<tr>
<td>Martin, A. R.</td>
<td>142, 222</td>
</tr>
<tr>
<td>Matsumaru, H.</td>
<td>69-71, 77, 78</td>
</tr>
<tr>
<td>Mauger, J. W.</td>
<td>E64, 81, 82, 84-88</td>
</tr>
<tr>
<td>Mazukami, S.</td>
<td>94, 95</td>
</tr>
<tr>
<td>McDonald, A.</td>
<td>E110, E111, 119, 174</td>
</tr>
<tr>
<td>Mehta, S. C.</td>
<td>E110-E112, 133, 170, 190</td>
</tr>
<tr>
<td>Meshali, M.</td>
<td>E14, 20, 30, 31, 37-42</td>
</tr>
<tr>
<td>Mikadze, I.</td>
<td>208-212</td>
</tr>
<tr>
<td>Milosovich, G.</td>
<td>168</td>
</tr>
<tr>
<td>Miseta, M.</td>
<td>E110-E112, 141, 203-205</td>
</tr>
<tr>
<td>Modak, S.</td>
<td>215</td>
</tr>
<tr>
<td>Author</td>
<td>Pages</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Morishita, T.</td>
<td>E14, 18, 56, 59, 60, 102, 103, E110-E112, 135, 193, 217, 218, 247, 248</td>
</tr>
<tr>
<td>Nagai, T.</td>
<td>36, 51-53, 58</td>
</tr>
<tr>
<td>Nagata, K.</td>
<td>94, 95</td>
</tr>
<tr>
<td>Nakano, M.</td>
<td>E64, 83, 90, 275, 276</td>
</tr>
<tr>
<td>Nambu, N.</td>
<td>36, 51-53, 58</td>
</tr>
<tr>
<td>Neish, W. J. P.</td>
<td>E110, E111, 122, 176</td>
</tr>
<tr>
<td>Nesbitt, R. U. Jr.</td>
<td>277-281</td>
</tr>
<tr>
<td>Nicklason, M.</td>
<td>264, 270, 271</td>
</tr>
<tr>
<td>Northam, J. J.</td>
<td>105</td>
</tr>
<tr>
<td>Nyqvist, H.</td>
<td>264, 270, 271</td>
</tr>
<tr>
<td>Ogata, H.</td>
<td>3, 22, 68, 263</td>
</tr>
<tr>
<td>Paruta, A. N.</td>
<td>E64, 81, 82, 84-88</td>
</tr>
<tr>
<td>Pepper, D. S.</td>
<td>152, 225</td>
</tr>
<tr>
<td>Peterson, H. Jr.</td>
<td>E64, 81, 82, 84-88</td>
</tr>
<tr>
<td>Postovskyik, I. Ya.</td>
<td>E110, E111, 118, 214, 221, E231, 234, 242</td>
</tr>
<tr>
<td>Puech, R.</td>
<td>272, 310-315</td>
</tr>
<tr>
<td>Pulver, R.</td>
<td>E110-E112, 151, 227</td>
</tr>
<tr>
<td>Riess, W.</td>
<td>4, 7, 9, 10, 27, 73, 92, 157, 191, 298, 301</td>
</tr>
<tr>
<td>Rudy, B. C.</td>
<td>E14, E15, 19, 24, 33, 43, 45, 47-50, 57</td>
</tr>
<tr>
<td>Rupprecht, H.</td>
<td>140, 177</td>
</tr>
<tr>
<td>Sanchez, F. M. E.</td>
<td>E110-E112, 126</td>
</tr>
<tr>
<td>Sandmann, B. J.</td>
<td>277-281</td>
</tr>
<tr>
<td>Sapozhnikova, N. V.</td>
<td>E110, E111, 118, 214, 221, E231, 234, 242</td>
</tr>
<tr>
<td>Schneller, G. H.</td>
<td>78, 79</td>
</tr>
<tr>
<td>Sekiguchi, K.</td>
<td>E110-E112, 128, 130, 134</td>
</tr>
<tr>
<td>Sekikawa, H.</td>
<td>E64, 83, 90, 275, 276</td>
</tr>
<tr>
<td>Selmeczy, B.</td>
<td>E110-E112, 141, 203-205</td>
</tr>
<tr>
<td>Senkowski, B. Z.</td>
<td>E14, E15, 19, 24, 33, 43, 45, 47-50, 57</td>
</tr>
<tr>
<td>Shah, N. H.</td>
<td>E14, E15, 21, 23, 25, 34, 44</td>
</tr>
<tr>
<td>Shepherd, R. G.</td>
<td>216, 246, 249</td>
</tr>
<tr>
<td>Snet, P. R.</td>
<td>E14, E15, 21, 23, 25, 34, 44</td>
</tr>
<tr>
<td>Shibazaki, T.</td>
<td>3, 22, 68, 263</td>
</tr>
<tr>
<td>Shkodova, A. I.</td>
<td>E110-E112, 132, 169</td>
</tr>
<tr>
<td>Shvelashvili, A. E.</td>
<td>210-212</td>
</tr>
<tr>
<td>Signorotti Ciranni, E.</td>
<td>145</td>
</tr>
<tr>
<td>Simonelli, A. P.</td>
<td>E110-E112, 133, 170, 190</td>
</tr>
<tr>
<td>Sjogren, B.</td>
<td>153, 154, 228</td>
</tr>
<tr>
<td>Sobin, S. S.</td>
<td>173</td>
</tr>
<tr>
<td>Stanford, J. W.</td>
<td>215</td>
</tr>
<tr>
<td>Strakosch, E. A.</td>
<td>E110, E111, 117, 213</td>
</tr>
<tr>
<td>Sondemann, F. W.</td>
<td>152, 225</td>
</tr>
<tr>
<td>Sunwoo, C.</td>
<td>46, 89, 189</td>
</tr>
<tr>
<td>Suter, R.</td>
<td>E110-E112, 151, 227</td>
</tr>
<tr>
<td>Tagawa, K.</td>
<td>262</td>
</tr>
<tr>
<td>Takayama, K.</td>
<td>36, 51-53, 58</td>
</tr>
<tr>
<td>Takubo, T.</td>
<td>69-71, 77</td>
</tr>
<tr>
<td>Tawashi, R.</td>
<td>E110-E112, 136, 165-167</td>
</tr>
<tr>
<td>Trefouel, M.</td>
<td>E110, E111, 116</td>
</tr>
<tr>
<td>Tskitishvili, M. G.</td>
<td>208-212</td>
</tr>
<tr>
<td>Tsuchiya, S.</td>
<td>69-71, 77, 78</td>
</tr>
<tr>
<td>Turolla, E.</td>
<td>6</td>
</tr>
<tr>
<td>Vree, T.B.</td>
<td>29, 62, 63, 75, 97, 101, 159, 229, 252, 253-255, 269, 287, 298, 308</td>
</tr>
<tr>
<td>Wagner, J. G.</td>
<td>105</td>
</tr>
<tr>
<td>Wahlgren, S.</td>
<td>197, 199</td>
</tr>
<tr>
<td>Watari, N.</td>
<td>E64, 66, 67, E110-E112, 137, 139, E257, 259-261, 274</td>
</tr>
<tr>
<td>Weinstein, L.</td>
<td>E110, E111, 119, 174</td>
</tr>
<tr>
<td>Author</td>
<td>Pages</td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Whitworth, C. W.</td>
<td>200-202</td>
</tr>
<tr>
<td>Wilkinson, J. H.</td>
<td>195, 196</td>
</tr>
<tr>
<td>Williams, J. H.</td>
<td>11, E110, E111, 114, 219, E231, 232, E239,</td>
</tr>
<tr>
<td></td>
<td>240, 250, 251, 256, 317</td>
</tr>
<tr>
<td>Winnek, P. S.</td>
<td>1, 11-13, E14, 16, 104, 107, 109, E110, E111,</td>
</tr>
<tr>
<td></td>
<td>114, 219, E231, 232, E239, 240, 250, 251,</td>
</tr>
<tr>
<td></td>
<td>256, 316, 317</td>
</tr>
<tr>
<td>Wyatt, D. K.</td>
<td>91, 100</td>
</tr>
<tr>
<td>Yamada, H.</td>
<td>26, 32, 35, 61</td>
</tr>
<tr>
<td>Yamazaki, M.</td>
<td>2, 5, 8, E14, 17, 28, 55, 65, 74, 93, 131,</td>
</tr>
<tr>
<td></td>
<td>158, 192</td>
</tr>
<tr>
<td>Yata, N.</td>
<td>2, 5, 8, E14, 17, 18, 28, 55, 56, 59, 60, 65,</td>
</tr>
<tr>
<td></td>
<td>74, 93, 102, 103, E110-E112, 131, 135, 158,</td>
</tr>
<tr>
<td></td>
<td>192, 193, 217, 218, 247, 248</td>
</tr>
<tr>
<td>Yousef, R. T.</td>
<td>80, 180-182</td>
</tr>
<tr>
<td>Zavaglio, V.</td>
<td>6</td>
</tr>
<tr>
<td>Zhorzholiani, N. B.</td>
<td>210-212</td>
</tr>
<tr>
<td>Ziller, K. H.</td>
<td>140, 177</td>
</tr>
<tr>
<td>Zimmerer, R. O., Jr</td>
<td>91, 100</td>
</tr>
<tr>
<td>Zuccaro, P.</td>
<td>145</td>
</tr>
</tbody>
</table>

Page numbers preceded by E refer to evaluation texts whereas page numbers not preceded by E refer to compiled tables.
SOLUBILITY DATA SERIES

| Volume 1 | H. L. Clever, Helium and Neon |
| Volume 2 | H. L. Clever, Krypton, Xenon and Radon |
| Volume 3 | M. Salomon, Silver Azide, Cyanide, Cyanamides, Cyanate, Selenocyanate and Thiocyanate |
| Volume 4 | H. L. Clever, Argon |
| Volume 5/6 | C. L. Young, Hydrogen and Deuterium |
| Volume 7 | R. Battino, Oxygen and Ozone |
| Volume 8 | C. L. Young, Oxides of Nitrogen |
| Volume 9 | W. Hayduk, Ethane |
| Volume 10 | R. Battino, Nitrogen and Air |
| Volume 11 | B. Scrosati and C. A. Vincent, Alkali Metal, Alkaline Earth Metal and Ammonium Halides. Amide Solvents |
| Volume 12 | C. L. Young, Sulfur Dioxide, Chlorine, Fluorine and Chlorine Oxides |
| Volume 13 | S. Siekierski, T. Mioduski and M. Salomon, Scandium, Yttrium, Lanthanum and Lanthanide Nitrates |
| Volume 14 | H. Miyamoto, M. Salomon and H. L. Clever, Alkaline Earth Metal Halates |
| Volume 15 | A. F. M. Barton, Alcohols with Water |
| Volume 16/17 | E. Tomlinson and A. Regosz, Antibiotics: I. 8-Lactam Antibiotics |
| Volume 18 | O. Popovych, Tetraphenylborates |
| Volume 19 | C. L. Young, Cumulative Index: Volumes 1–18 |
| Volume 20 | A. L. Horvath and F. W. Getzen, Halogenated Benzenes, Toluene and Phenols with Water |
| Volume 21 | C. L. and Young P. G. T. Fogg, Ammonia, Amines, Phosphine, Arsine, Stibine, Silane, Germane and Stannane in Organic Solvents |
| Volume 22 | T. Mioduski and M. Salomon, Scandium, Yttrium, Lanthanum and Lanthanide Halides in Nonaqueous Solvents |
| Volume 23 | T. P. Dirkse, Copper, Silver, Gold, and Zinc, Cadmium, Mercury Oxides and Hydroxides |
| Volume 24 | W. Hayduk, Propane, Butane and 2-Methylpropane |
| Volume 25 | C. Hirayama, Z. Galus and C. Guminski, Metals in Mercury |
| Volume 26 | M. R. Masson, H. D. Lutz and B. Engelen, Sulfites, Selenites and Tellurites |
| Volume 27/28 | H. L. Clever and C. L. Young, Methane |
| Volume 29 | H. L. Clever, Mercury in Liquids, Compressed Gases, Molten Salts and Other Elements |
| Volume 30 | H. Miyamoto and M. Salomon, Alkali Metal Halates, Ammonium Iodate and Iodic Acid |
| Volume 31 | J. Eysseltová and T. P. Dirkse, Alkali Metal Orthophosphates |
| Volume 32 | P. G. T. Fogg and C. L. Young, Hydrogen Sulfide, Deuterium Sulfide and Hydrogen Selenide |
| Volume 33 | P. Franzosini, Molten Alkali Metal Alkanoates |
| Volume 34 | A. N. Paruta and R. Piekos, 4-Aminobenzensulphonamides. Part I: Non-cyclic Substituents |
| Volume 35 | A. N. Paruta and R. Piekos, 4-Aminobenzensulphonamides. Part II: 5-Membered Heterocyclic Substituents |