COMPONENTS:	EVALUATOR:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Water (3) Aqueous sodium salicylate	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 solubilities of sulfanilamide, the parent compound of the derivatives found in these volumes, in water at various temperatures are given in Tables I-III on the mol dm^{-3} concentration scale. The originating author's values are always stated in the units reported. All recommended values are given as the simple average of the referenced magnitudes on the mol dm^{-3} scale.

Table I: Solubility of Sulfanilamide in water, 293K

Reference	10^2 mol dm^{-3} (*indicates mol kg^{-1})
5	3.1*
6	2.3*
7	3.5 (291-292K)
10	3.1
11	3.07*
12	3.1
14	3.07*
17	3.07
18	3.34
20	3.662 (polymorph)
21	3.1
22	3.07 (294-298K)
23	3.06*
24	3.447
27	3.539* (beta polymorph)

The solubility given by Weinstein and McDonald (6) is about two-thirds of the other values and was therefore rejected. The results of Becher and Leya (7), and of Gusyakov et al. (22) were also rejected since they refer to a temperature range of two to four degrees. Further, Becher and Leya (7), give a value about 15% higher than the apparent average. In 1944, Sapozhnikova and Postovskii (5), and Knazko (18) in 1966, used equilibrium times of one hour and three to four hours, respectively. These equilibrium times are considered inadequate for a saturation to be reached, and even though the values appear to be valid, they were not considered further. In 1971, Rohdewald (24) used a two hour equilibrium time which is considered as a pre-saturation time, yet Rohdewald (24) reported a value that was about 15% too high with respect to the apparent average. Ito and Sekiguchi (20), and Sekiguchi et al. (27) in 1967 and 1975, respectively, used polymorphic forms of sulfanilamide which may not be identifiable with the solute under consideration. Since the reports (20,27) do not give melting points for the polymorphs, they cannot be used in this evaluation. It is interesting to note that the beta form used by Sekiguchi et al. (27) is the stable form and should be quite close to the sulfanilamide value. However, the value provided is calculated rather than experimental, and would not be appropriate to mix with experimental results. The remaining values are sufficiently close in magnitude to evaluate further. The values of Gusyakov and Sukmans'ka in 1960 and 1961 (10-12), and Shkadova (23) in 1969, indicate that equilibrium had been reached, and may be assumed reasonably accurate. However, in two cases (10,12), the solubility technique of adding solute to a solution of the solute until saturation has been reached, is considered invalid, and were not used although the values given were "good" (concurring with the apparent average) numbers. The final pool of values (11,14,17,21), using at least an 8 hour equilibration time and appropriate analytical methods, allow for an average to be calculated and the recommended value for sulfanilamide in water at 293K is given as 3.08×10^{-2} mol dm^{-3}. It is interesting to note that even if the values from other workers (10,12,23) were used in the calculation, there would be no difference in the final result in the recommended value due obviously to their concurrence with the average value.

Aqueous solubility of sulfanilamide was studied at room temperature, 298K by eight workers (3,8,9,13,15,16,20,27), and the reported numerical data are summarized in Table II. There are three reports by Sekiguchi et al. (16,20,27) dealing with the polymorphic forms of sulfanilamide. While the value of 4.711×10^{-2} mol dm^{-3} in reference 20 is quite close to other values, as was the value in reference 27, none of the polymorphic forms were considered further. The value given by Khawan et al. (13) for 297K, appears to be too low by about 15% and was not placed in the final pool of acceptable values. The remaining four values by Clark et al. (3), Dolique and Foucault (8), Matsuura and Sekiguchi (9) and Paruta et al. (15) using equilibrium times longer than 9 hours, up to 72 hours, were determined by appropriate analytical methods. The initial average value of the four acceptable values allow for a tentative recommeded value of 4.72 x 10^{-2} mol dm^{-3} at 298K.

Table II: Solubility of Sulfanilamide in water, 298K

Reference	10^2 mol dm^{-3} (*indicates mol kg^{-1})
3	4.86*
8	4.7* (299K)
9	4.55
13	4.16 (297K)
15	4.8 (296.7K)
16	4.1925 (beta polymorph)
20	4.711 (unspecified polymorph)
27	4.677* (beta polymorph)
27	5.451* (alpha polymorph)

The tentative designation results from the slight differences in temperature reported in these papers (8,15), which were 299K and 297.6K, as given by Dolique and Foucault (8) and Paruta et al. (15). The authors give values within 1% of the average value using Clark et al. (3) and Matsuura and Sekiguchi (9) values alone leading to an average value of 4.70 x 10^{-2} mol dm^{-3}.

The solubility of sulfanilamide at body temperature, 310K in water as reported by various workers are given in Table III.

Table III: Solubility of Sulfanilamide in water, 310K

Reference	10^2 mol dm^{-3} (*indicates mol kg^{-1})
1	8.59
2	11*
3	8.48*
4	8.64*
5	8.4*
26	8.19
28	8.65
29	9.93

The value given by Tréfouël (2) is obviously too high. That of Goto et al. (29) is also higher than the apparent average by about 15% and neither is considered in the final pool of acceptable values. Sapozhnikova and Postovskii (5), and Kitao et al. (26) provide reasonable values, though the former used an equilibrium time of one hour only and the latter give no specification relative to saturation. Clark et al. (3), Kienle and Sayward (4) and Kaneniwa et al. (28) used adequate equilibration times and accurate analytical methods. Durel and Allinne (1) used 24 hours for saturation, however, no analytical method was specified. Thus, the saturation solubility for sulfanilamide at 310K can be given as 8.59 x 10^{-2} mol dm^{-3}. There were two additional solubility determinations in water. Yamazaki et al. (19) reported a value of 6.1 x 10^{-2} mol dm^{-3} at 303K, which is about the correct magnitude. Burger (25) gave solubilities of polymorphic Form II with a melting point of 429K over a temperature range of 313K-358K.

Solubility was also determined in an aqueous hydrotropic 1 mol dm^{-3} sodium salicylate (30-32) at 293K and a tentative value of 8.10 x 10^{-2} mol dm^{-3} can be suggested. The 1 mol dm^{-3} solution of sodium salicylate causes a 2.63 fold increase in the solubility of sulfanilamide.

REFERENCES:

(1) Durel, M.P.; Allinne, M. *Bull. Soc. Med. Hop. Paris III* 1941, 251-9.
(2) Tréfouël, M. *Bull. Acad. Med. Paris* 1941, *124*, 546-54.
(3) Clark, W.G.; Strakosch, E.A.; Levitan, N.I. *J. Lab. Clin. Med.* 1942, *28*, 188-9.
(4) Kienle, R.H.; Sayward, J.M. *J. Am. Chem. Soc.* 1942, *64*, 2464-8.
(5) Sapozhnikova, N.V.; Postovskii, I.Ya. *Zh. Prikl. Khim.* 1944, *17*, 427-34.
(6) Weinstein, L.; McDonald, A. *Science* 1945, *101*, 44-5.
(7) Becher, R.; Leya, S. *Experientia* 1946, *2*, 459-60.
(8) Dolique, R.; Foucault, J. *Trav. soc. pharm. Montpellier* 1952, *12*, 145-53.
(9) Matsuura, H.; Sekiguchi, K. *Yakuzaigaku* 1960, *20*, 213-18.
(10) Gusyakov, V.P.; Sukmans'ka, I.V. *Farm. Zh. (Kiev)* 1960, *15(1)*, 20-23.
(11) Gusyakov, V.P.; Likhol'ot, N.M. *Farm. Zh. (Kiev)* 1960, *15(3)*, 21-4.
(12) Gusyakov, V.P.; Sukmans'ka, I.V. *Farm. Zhur. (Kiev)* 1961, *16*, 25-8.
(13) Khawan, M.N.; Tawashi, R.; Czetsch-Lindenwald, H.V. *Sci. Pharm.* 1964, *32*, 271-9.
(14) Likhol'ot, N.M.; Gusyakov, V.P. *Farm. Zh. (Kiev)* 1964, *19(1)*, 52-5.

(14) Likhol'ot, N.M.; Gusyakov, V.P. *Farm. Zh. (Kiev)* 1964, *19(1)*, 52-5.

(15) Paruta, A.N. *J. Pharm. Sci.* 1964, *53(10)*, 1252-4.

(16) Sekiguchi, K.; Ito, K. *Chem. Pharm. Bull.* 1965, *13(4)*, 405-13.

(17) Likhol'ot, N.M. *Farm. Zh. (Kiev)* 1965, *20(5)*, 44-6.

(18) Knazko, L. *Farm. Obzor* 1966, *35*, 298-311.

(19) Yamazaki, M.; Aoki, M.; Kamada, A.; Yata, N. *Yakuzaigaku* 1967, *27(1)*, 37-40.

(20) Ito, K.; Sekiguchi, K. *Chem. Pharm. Bull.* 1967, *15(4)*, 420-6.

(21) Gusyakov, V.P.; Likhol'ot, N.M.; Kutna, I.M. *Farm. Zh. (Kiev)* 1967, *22(3)*, 34-9.

(22) Gusyakov, V.P.; Likhol'ot, N.M.; Kutna, I.M. *Farm. Zh. (Kiev)* 1968, *23(6)*, 56-61.

(23) Shkadova, A.I. *Farm. Zh. (Kiev)* 1969, *24(3)*, 39-41.

(24) Rohdewald, P. *Pharm. Ztg.* 1971, *No. 38*, 1342-4.

(25) Burger, A. *Pharm. Ind.* 1973, *35*, 626-33.

(26) Kitao, K.; Kubo, K.; Morishita, T.; Yata, N.; Kamada, A. *Chem. Pharm. Bull.* 1973, *21*, 2417-26.

(27) Sekiguchi, T.; Tsuda, Y.; Kanke, M. *Chem. Pharm. Bull.* 1975, *23*, 1353-62.

(28) Kaneniwa, N.; Watari, N.; Iijima, H. *Chem. Pharm. Bull.* 1978, *26(9)*, 2603-14.

(29) Goto, S.; Komatsu, M.; Tagawa, K.; Kawata, M. *Chem. Pharm. Bull.* 1983, *31(1)*, 256-61.

(30) Knazko, L. *Farm. Obzor* 1966, *35*, 298-311.

(31) Gusyakov, V.P.; Sukmans'ka, I.V. *Farm. Zh. (Kiev)* 1960, *15(1)*, 20-23.

(32) Gusyakov, V.P.; Sukmans'ka, I.V. *Farm. Zhur. (Kiev)* 1961, *16*, 25-8.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-
(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Allport, N. L.

Quart. J. Pharm. Pharmacol. 1936,
9, 360-6.

VARIABLES:

Temperature

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

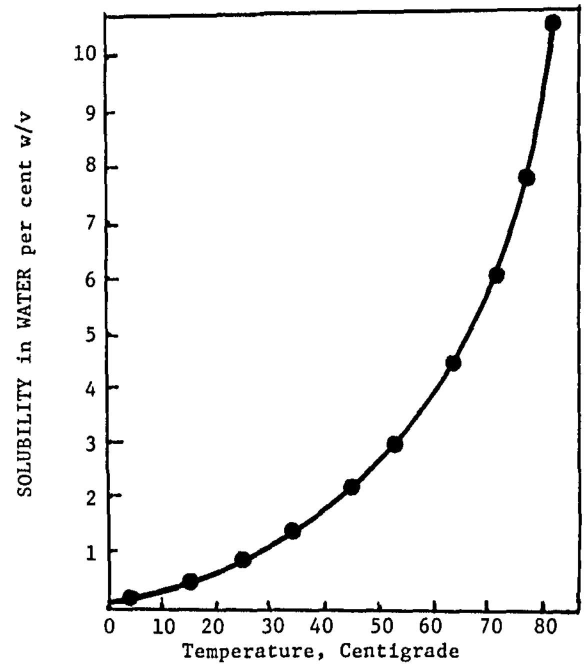


Fig. 1. - The variation with temperature of the solubility in water of *p*-aminobenzenesulphonamide.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Nothing specified.

SOURCE AND PURITY OF MATERIALS:

The sulfanilamide was prepd in the author's laboratory on a semitechnical scale and melted quite sharply at 166.0°C.

Specimens recrystd from dil alcohol melted at 166.5°C. No other details were given.

Purity of the water was not specified.

ESTIMATED ERROR:

Temp: not specified.

Soly: not specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Durel, M.P.; Allinne. M.

Bull. Soc. Med. Hop. Paris III

1941, 251-9.

VARIABLES:

One temperature: 37°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 37°C is 14.8 g/liter (8.59×10^{-2} mol dm^{-3}, compiler)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A mixt of sulfanilamide and water was agitated for 24 hours at 37°C.

SOURCE AND PURITY OF MATERIALS:

Source and purity of sulfanilamide was not specified.

Distilled water was used.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Tréfouël, M.

Bull. Acad. Med. Paris 1941, *124*, 546-54.

VARIABLES:

One temperature: 37°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 37°C is 1.8 parts per 100 parts water (0.11 mol kg^{-1} water, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was diazotized, coupled with N-naphthyl-1-N,N-diethyl-3-propylenediamine and assayed colorimetrically.

SOURCE AND PURITY OF MATERIALS:

Nothing specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Clark. W.G.; Strakosch, E.A.; Levitan, N.I. *J. Lab. Clin. Med.* 1942, *28*, 188-9.

VARIABLES:

Temperature

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

t/°C	Solubility	
	g/100 g water	10^2 mol kg^{-1} water[a]
25	0.836	4.86
37	1.460	8.48

[a] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A small tinted glass container contg excess sulfanilamide 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 sulfanilamide was specified.

CO_2-free distd water was used.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±0.1°C (authors).

REFERENCES:

1. Bratton, A.C.; Marshall, E.K., Jr. *J. Biol. Chem.* 1939, *128*, 537.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Kienle, R. H.; Sayward, J. M.

J. Am. Chem. Soc. 1942, *64*, 2464-8.

VARIABLES:

Temperature

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

$t/^{\circ}C$	Solubility g/100 g soln (2σ)		Solubility mol kg^{-1} [a]	
23.0	0.64; 0.64		0.0374	
24.0	0.69		0.0403	
26.0	0.77		0.0451	
27.0	0.82; $0.82^{c,b}$	±0.012	0.0480	±0.00070
27.0	0.82; 0.83		0.0480; 0.0486	
28.0	0.87; 0.87		0.0510	
30.5	1.01		0.0592	
31.7	1.08; 1.08^b		0.0634	
33.0	1.19		0.0699	
34.0	1.26_b	±0.015	0.0741	±0.000871
34.0	1.27^b; 1.27		0.0747	
35.5	1.37		0.0807	
37.0	1.47; 1.47	±0.010	0.0866	±0.000581
37.0	1.47^b 1.47^b		0.0866	
37.0	1.46^c		0.0860	
39.0	1.61; 1.61		0.0950	
42.0	1.84		0.1088	
46.0	2.21		0.1312	
50.0	2.68^c		0.1599	

[a] calculated by compiler; [b] equilibrium approached from below;

[c] duration less than twelve hours.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of sulfanilamide was rotated with water usually overnight. Equilibrium was approached usually from above. Sampling was accomplished by forcing the soln through a filter into a pycnometer. From the pycnometer the contents were flushed into a volumetric flask. Duplicate aliquots were acidified, iced below 15°C and titrated with a 0.04 mol dm^{-3} $NaNO_2$ soln to first blue on starch - iodide paper.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (U.S.P.) from plant production was recrystd from alcohol and from hot water; mp 165.9°C. Titrn with nitrite indicated that the compd was 100±0.3% pure. Elemental analysis and mixed mp detns confirmed this value. Purity of the water was not specified.

ESTIMATED ERROR:

Soly: ±0.01 g/100 g soln or $\pm 0.012 \times 10^{-3}$ in mole fraction (authors).

Temp: ±0.02°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Sapozhnikova, N.V.; Postovskii, I. Ya.
Zh. Prikl. Khim. 1944, *17*, 427-34.

VARIABLES:

Temperature

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

$t/^{\circ}C$	Solubility	
	Weight %	mol kg^{-1} water[a]
20	0.53	0.031
37	1.42	0.084
50	2.63	0.157
75	7.58	0.476
99	19.2	1.380

[a] calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide 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 sulfanilamide 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 poor due to evapn of water during sampling (authors). Temp: ±0.05°C (authors).

REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Water; H_2O; [7732-18-5]	ORIGINAL MEASUREMENTS: Weinstein, L.; McDonald, A. *Science* 1945, *101*, 44-5.
VARIABLES: One temperature: 20°C	PREPARED BY: R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 20°C is 400 mg/100 cm^3 water (2.3 x 10^{-2} mol kg^{-1}, 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- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Becher, R.; Leya, S.

Experientia 1946 *2*, 459-60

VARIABLES:

One temperature: 18-19°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at room temperature (18-19°C) is 610 mg% (3.5×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

After standing for more than two days the soln of sulfanilamide in water was filtered and sulfanilamide 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:

1. Druey, J.; Oesterheld, G. *Helv. Chim. Acta* 1942, *25*, 753.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Dolique, R; Foucault, J.

Trav. soc. pharm. Montpellier 1952, *12*, 145-53.

VARIABLES:

One temperature: 26°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 26°C is 0.8 g/100 g water (4.7×10^{-2} mol kg^{-1} water - compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The satd soln of sulfanilamide was shaken in a test tube for 12 h at 26°C and filtered. The filtrate was evapd at 100-110°C and the residue was weighed.

SOURCE AND PURITY OF MATERIALS:

Nothing specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Matsuura, H.; Sekiguchi, K.

Yakuzaigaku 1960, *20*, 213-18.

VARIABLES:

One temperature: 25°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 25°C is 0.782 g/100 ml (4.55×10^{-2} mol L^{-1}).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of sulfanilamide was agitated in water at 25°C for more than 9 h. Aliquots of the satd soln were withdrawn with a pipet fitted with a filter and sulfanilamide was detd spectrophotometrically using the Tsuda reagent for producing color.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was of the Japanese Pharmacopeia grade and was recrystd. Purity of the water was not specified.

ESTIMATED ERROR:

Soly: the error was 1.5% (authors).

Temp: ±0.05°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Gusyakov, V. P.; Sukmans'ka, I.V.
Farm. Zh. (Kiev) **1960**, *15(1)*, 20-23.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 20°C is 0.53 g/100 ml water (3.1×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

To 50-ml tightly stoppered test tubes contg 25 ml water, placed in a thermostat, accurately weighed 0.02-0.002-g quantities of sulfanilamide were added under agitation until satn was attained.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide conformed to the requirements of the State Pharmacopeia VIII. Distilled water was used.

ESTIMATED ERROR:

Temp: ±0.1°C (authors).
Soly: the accuracy of the detn of the concn was similar to that attained by volumetric method (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-
(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]
(2) Water; H_2O; [7732-18-5]

ORIGINAL MEASUREMENTS:

Gusyakov, V. P.; Likhol'ot, N. M.
Farm. Zh. (Kiev) 1960, *15(3)*, 21-4.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 20°C is 0.528 g/100 g water (3.07×10^{-2} mol kg^{-1}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A small excess of sulfanilamide was equilibrated for 8 h in a 50-ml test tube with 20 ml of water. Aliquots were taken with a pipet fitted with a filter. Sulfanilamide was detd at 285 nm using a SF-4 spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was crystd three times from hot water. Its purity conformed to the requirements of the State Pharmacopeia VIII.
Purity of the water was not specified.

ESTIMATED ERROR:

Soly: the accuracy corresponded to that of colorimetric detns (authors).
Temp: not specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-
(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]
(2) Water; H_2O; [7732-18-5]

ORIGINAL MEASUREMENTS:

Gusyakov, V. P.; Sukmans'ka, I. V.
Farm. Zh. *(Kiev)* 1961, *16*, 25-8.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 20°C is 0.53 g/100 ml water (3.1×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added in small portions (0.02 - 0.002 g) to a known volume of water, held on a water bath, until satn was attained. Moreover, the concn of sulfanilamide was detd by means of a FEK-M photoelectrocolorimeter.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was a pharmacopeial product. Purity of the water was not specified.

ESTIMATED ERROR:

Soly: results of the colorimetric and gravimetric runs differed by 1-3% (authors).

Temp: ±0.1°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-
(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]
(2) Water; H_2O; [7732-18-5]

ORIGINAL MEASUREMENTS:

Khawan, M. N.; Tawashi, R.;
Czetsch-Lindenwald, H. V.
Sci. Pharm. 1964, *32*, 271-9.

VARIABLES:

Temperature

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

t°C	Solubility	
	g/l	10^2 mol dm^{-3} [a]
13	3.58	2.08
15	3.79	2.20
16	3.85	2.24
24	7.17	4.16
34	12.71	7.38
44	20.36	11.82

[a] calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added in excess to water and the mixture was stirred for 30 min. The soln was then kept in a drying cabinet for 24 h and occasionally shaken. After filtration the solution was assayed in the filtrate by the USP XVI method based on diazotization. The end point was detected by means of a starch paste as an indicator.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide conformed to the requirements of USP XVI.
Purity of the water was not specified.

ESTIMATED ERROR:

Soly: Measurements were made in duplicate (authors).
Temp: ±1°C (authors).

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Water; H_2O; [7732-18-5]	Likhol'ot, N. M.; Gusyakov, V. P. *Farm. Zh. (Kiev)* 1964, *19(1)*, 52-5.
VARIABLES:	PREPARED BY:
One temperature: 20°C	R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 20°C is 0.528 g/100 g water (3.07×10^{-2} mol kg^{-1} water, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The previously described method (1) was employed whereby a small excess of sulfanilamide was equilibrated with 20 ml of water in a 50-ml test tube for 8 h. Aliquots of the satd soln were removed through a filter and sulfanilamide was assayed bromatometrically (2).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (source not specified) was recrystd from water.
Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Gusyakov, V. P.; Likhol'ot, N. M. *Farm. Zh. (Kiev)* 1960, *15(3)*, 21.
2. *The Extra Pharmacopeia (Martindale)* 1955, *2(23)*, 353, 389.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Paruta, A. N.

J. Pharm. Sci. 1964, *53(10)* 1252-4.

VARIABLES:

One temperature: 24.6°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 24.6°C is 8.3 mg/ml (4.8 x 10^{-2} mol dm^{-3} - compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The soly was detd in 15-ml vials attached to a submerged rotating plastic disk. The plastic disk unit was attached to a dispersator motor fitted with an Al shaft and submerged with attached samples in an 8-gal water bath. The temp of the bath was maintained at 24.6±0.2°C by a Sargent thermomonitor unit. After equilibration for about 72 h, samples were withdrawn through a fine glass-wool plug fitted to a pipet, placed in a volumetric flask and dild for subsequent analysis. The concn of the solute was detd by a Beckman DK-2 spectrophotometer from sample absorbance and a previously detd Beer-Lambert law plot. The absorption max for sulfanilamide was 259 mμ.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was recrystd from an EtOH - water mixt and dried to const wt at 40°C. Its source was not specified.

Dist water was used.

ESTIMATED ERROR:

Soly: not specified.

Tem: ±0.2°C (author).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Sekiguchi, K.: Ito, K.

Chem. Pharm. Bull. 1965, *13(4)*, 405-13.

VARIABLES:

Temperature

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

t/°C	Solubility	
	10^3 mol dm^{-3} solution	g dm^{-3} [a]
15	23.111	3.9797
25	41.925	7.2195
35	77.928	13.419

[a] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

In a 200-ml egg-plant type flask, immersed in a thermostat, an excess of sulfanilamide 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 258 mμ.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide 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:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Likhol'ot, N. M. *Farm. Zh. (Kiev)* 1965, *20(5)*, 44-6.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 20°C is 0.528 g/100 ml (3.07×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An earlier described method was employed (1) whereby a small excess of sulfanilamide was equilibrated with 20 ml of water for 8 h is a 50-ml test tube. Aliquots were removed through a filter and sulfanilamide was assayed bromatometrically.

SOURCE AND PURITY OF MATERIALS:

Nothing specified.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±0.1°C (authors).

REFERENCES:

1. Gusyakov, V. P.; Likhol'ot, N. M. *Farm. Zh. (Kiev)* 1960, *15(8)*, 21.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Kňažko, L. *Farm. Obzor* 1966, *35*, 298-311.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 20°C is 0.575 g/100 ml water (3.34×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added in small portions to a known volume of water until reaching satn. The equilibration time was 3-4 h under stirring. The temp was held const by means of the Höppler ultrathermostat.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide conformed to the requirements of the Czechoslovak Pharmacopeia 2 (1954), Suppl. 1959. Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-
(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Yamazaki, M.; Aoki, M.; Kamada, A.; Yata, N. *Yakuzaigaku* 1967, *27(1)*, 37-40.

VARIABLES:

One temperature: 30°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 30°C is 61.0 mmol/L (10.50 g dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide (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 sulfanilamide 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) Benzensulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Ito, K.; Sekiguchi, K.
Chem. Pharm. Bull. 1967, *15(4)*, 420-6.

VARIABLES:

Temperature

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

$t/^{\circ}C$	Solubility	
	10^3 mol dm^{-3} solution	g dm^{-3} [a]
20	3.622	0.6237
25	4.711	0.8112
30	5.988	1.0311
35	7.703	1.3265

[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 sulfanilamide 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 258 mμ.

SOURCE AND PURITY OF MATERIALS:

Polymorphic modifications of sulfanilamide (source not specified) were prepd by the method of Watanabe (2). Distd water was used.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Sekiguchi, K.; Ito, K. *Chem. Pharm. Bull.* 1965, *13(4)*, 405.
2. Watanabe, A.; Kamio, H. *Yakugaku Zasshi* 1942, *62* 501.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Gusyakov, V.P.; Likhol'ot, N.M.; Kutna, I.M. *Farm. Zh. (Kiev)* 1967, *22(3)* 34-9.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 20°C is 0.53 g/100 ml (3.1×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of sulfanilamide 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 sulfanilamide content was assayed in the filtrate photometrically.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide 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:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Water; H_2O; [7732-18-5]	Gusyakov, V.P.; Likhol'ot, N.M.; Kutna, I.M. *Farm. Zh. (Kiev)* 1968, *23(6)* 56-61.
VARIABLES:	**PREPARED BY:**
One temperature: 21-25°C	R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at room temperature (21-25°C) is 0.528 g/100 ml (3.07×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Small quantities (2-4 mg) of sulfanilamide were added to a known quantity of water under stirring until satn was achieved.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide: neither source nor purity was specified. Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Water; H_2O; [7732-18-5]	Shkadova, A.I. *Farm. Zh. (Kiev)* 1969, *24(3)*, 39-41.
VARIABLES:	PREPARED BY:
One temperature: 20°C	R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 20°C is 3.06×10^{-2} mol/kg (0.53 g/100 g, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
A satd aqueous solution of sulfanilamide was equilibrated in a water thermostat at 20 ± 0.1°C. The concn of sulfanilamide was detd bromatometrically.	Purity of sulfanilamide 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- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Water; H_2O; [7732-18-5]	ORIGINAL MEASUREMENTS: Rohdewald, P. *Pharm. Ztg.* 1971, *No. 38* 1342-4.
VARIABLES: One temperature: 20°C	PREPARED BY: R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 20°C is 0.296_7 g/50 ml (3.447×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The soln was equilibrated by agitation for 2 h at 20°C and the sulfanilamide was assayed by differential gravimetric analysis. No details were given.

SOURCE AND PURITY OF MATERIALS:

The source and purity of the materials was not specified.

ESTIMATED ERROR: Soly: mean std deviation 68.3% of results deviating by S g), S = 0.028; relative std deviation 9.37%; no of detns 131 (author).
Temp: ±0.05°C (author).

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino-(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Water; H_2O; [7732-18-5]	Burger, A. *Pharm. Ind.* 1973, *35*, 626-33.
VARIABLES:	**PREPARED BY:**
Temperature	R. Piekos

EXPERIMENTAL VALUES:

t/°C	Saturation solubility, C_s[a], of crystalline form II	
	mg/100 ml solution	mol dm^{-3}[b]
40.0	1440	0.084
45.0	1870	0.109
50.0	2390	0.140
55.0	3080	0.180
60.0	3950	0.230
65.0	5100	0.296
70.0	6600	0.383
75.0	8900	0.517

[a] C_s = [HA] + [A^-], where [HA] is the molar concentration of the dissolved, undissociated molecules of sulfanilamide and [A^-] is the concentration of the dissolved anion of sulfanilamide.

[b] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was assayed spectrophotometrically at 258.5 nm using a Zeiss PMQ II spectrophotometer and a 1/15 M phosphate buffer of pH 7.00 ($E^{1\%}_{1\ cm}$ = 945).

SOURCE AND PURITY OF MATERIALS:

Form II of sulfanilamide, mp 156°C, was obtained by the known procedure (1). Purity of the water was not specified.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±0.1°C (author).

REFERENCES:

1. Burger, A. *Sci. Pharm.* 1973, *41*, 290 and 303.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Water; H_2O; [7732-18-5]	Kitao, K.; Kubo, K.; Morishita, T.; Yata, N.; Kamada, A. *Chem. Pharm. Bull.* 1973, *21*, 2417-26.
VARIABLES:	**PREPARED BY:**
One temperature: 37°C	R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 37°C is 1.41 g/100 cm^{-3} solution.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was assayed by diazotization. No details were given.

SOURCE AND PURITY OF MATERIALS:

Comm available sulfanilamide was used as supplied.

Deionized water was used.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±1°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Sekiguchi, K.; Tsuda, Y.; Kanke, M.

Chem. Pharm. Bull. 1975, *23*, 1353-62.

VARIABLES:

Temperature

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

$t/^\circ C$	Solubility			
	α - form		β - form	
	g/100 g soln	10^3 mol kg^{-1} water[a]	g/100 g soln	10^3 mol kg^{-1} water[a]
20	0.68	0.3976	0.615[b]	0.3593
25	0.93	0.5451	0.799[b]	0.4677
30	1.15	0.6756	1.024[b]	0.6008
35	1.49	0.8783	1.299	0.7643
40	1.90	1.1247	1.639	0.9676
45	2.17	1.2881	2.069	1.2269
50	3.33	2.0004	2.562	1.5269

[a] Calculated by compiler.

[b] Calculated from the equation $C_s' = C_s \times \frac{dE'/dt}{dE/dt}$, where C_s and dE/dt, and C_s' and dE'/dt are the solubility and dissolution rate of the stable (β) and metastable (α) crystalline forms of sulfanilamide, respectively.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A sufficient amt of sample powder was placed in a 50 g of distd water in a dissoln measurement cell and stirred at 600 rpm. At appropriate time intervals samples were taken by glass syringes until the concn attained equilibrium. The sample solns were immediately filtered through a 0.45-μ membrane filter. The filtrate was weighed and dild for spectrophotometric assay at 225 nm on a Hitachi-139 UV spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

The α-form of sulfanilamide was obtained by crystn of a comm product of the JP VIII grade from isoamyl, n-amyl or n-butyl alcohol, by holding the warm soln at room temp or cooling it immediately. The β-form was crystd from EtOH by gradual cooling of its warm soln to room temp and maintaining for 2-3 days. The forms were characterized by instrumental methods.

Distilled water was used.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Water; H_2O; [7732-18-5]	Kaneniwa, N.; Watari, N.; Iijima, H. *Chem. Pharm. Bull.* 1978, *26(9)*, 2603-14.
VARIABLES:	PREPARED BY:
One temperature: 37°C	R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in water at 37°C is 14.9 mg/ml solution (8.65×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of sulfanilamide 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 sulfanilamide 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. *Chem. Pharm. Bull.* 1974, *22*, 1699.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Goto, S.; Komatsu, M.; Tagawa, K.; Kawata, M.

Chem. Pharm. Bull. 1983, *31(1)*, 256-61.

VARIABLES:

Temperature

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

t/°C	Solubility	
	g/l	10^2 mol dm^{-3} [a]
37	17.10	9.930
55	39.86	23.150

[a] Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A 3 g sample of sulfanilamide powder was accurately weighed into a 20-ml ampule and 10 ml of water was added. the ampule 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 540 nm after diazotization with the 0.1% Tsuda reagent (1).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide had mp 163-6°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- (sulfanilimide); $C_6H_8N_2O_2S$; [63-74-1] (2) Hydrochloric acid; HCl; [7647-01-0] (3) Water; H_2O; [7732-18-5]	ORIGINAL MEASUREMENTS: Paál, T.; Regősz, P. *Gyógyszerészet* <u>1973</u>, *17*, 59-63.
VARIABLES: Concentration of HCl	PREPARED BY: R. Piekos

EXPERIMENTAL VALUES:

Concentration of HCl N	Concentration of the most concentrated real solution of sulfanilamide at 26°C mol dm^{-3} solvent
5	0.3
1	1.15
0.1	0.13

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Satd solns were prepd by addn of increasing amts of aq HCl to weighed quantities of sulfanilamide. After the dissoln was completed, the soln was stirred with a magnetic stirrer and allowed to stand for 24 h. The soln was considered stable, if it remained clear during a 24-h period.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was a com product (source not specified), doubly crystd from 98% EtOH. Its purity was > 99.5% as detd by diazotization. The source and purity of the remaining materials was not specified.

ESTIMATED ERROR:

Soly: accuracy ±10% (authors).

Temp: ±3°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Perchloric acid; $HClO_4$; [7601-90-3]

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

ORIGINAL MEASUREMENTS:

Paál, T.; Regösz, P.

Gyógyszerészet 1973, *17*, 59-63.

VARIABLES:

Concentration of $HClO_4$

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of $HClO_4$ N	Concentration of the most concentrated real solution of sulfanilamide at 26°C mol dm^{-3} solvent
5	0.4 (1.75)[a]
1	1.15
0.1	0.13

[a] Concentration of the most concentrated metastable solution that could be prepared without precipitation of the solute.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Satd solns were prepd by addn of increasing amts of aq $HClO_4$ to weighed quantities of sulfanilamide. After the dissoln was completed, the soln was stirred with a magnetic stirrer and allowed to stand for 24 h. The soln was considered stable, if it remained clear during a 24-h period. If the solute fell out from the clear soln, the soln was considered metastable.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was a comm product (source not specified), double crystd from 98% EtOH. Its purity was > 99.5% as detd by diazotization. The source and purity of the remaining materials was not specified.

ESTIMATED ERROR:

Soly: accuracy ±10% (authors).

Temp: ±3°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Nitric acid HNO_3; [7697-37-2]

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

ORIGINAL MEASUREMENTS:

Paál, T.; Regősz, P.

Gyógyszerészet 1973, *17*, 59-63

VARIABLES:

Concentration of HNO_3

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of HNO_3 N	Concentration of the most concentrated real solution of sulfanilamide at 26°C mol dm^{-3} solvent
5	0.15
1	1.15
0.1	9×10^{-2}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Satd solns were prepd by addn of increasing amts of aq HNO_3 to weighed quantities of sulfanilamide. After the dissolution was completed, the soln was stirred with a magnetic stirrer and allowed to stand for 24 h. The soln was considered stable, if it remained clear during a 24-h period.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was a comm product (source not specified), doubly crystd from 98% EtOH. Its purity was > 99.5% as detd by diazotization. The source and purity of the remaining materials was not specified.

ESTIMATED ERROR:

Soly: accuracy ±10% (authors).

Temp: ±3°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Lithium chloride; LiCl; [7447-41-8]

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

ORIGINAL MEASUREMENTS:

Likholet, M. A.; Gusyakov, V. P.

Med. Prom. SSSR 1963, *17(5)*, 28-31.

VARIABLES:

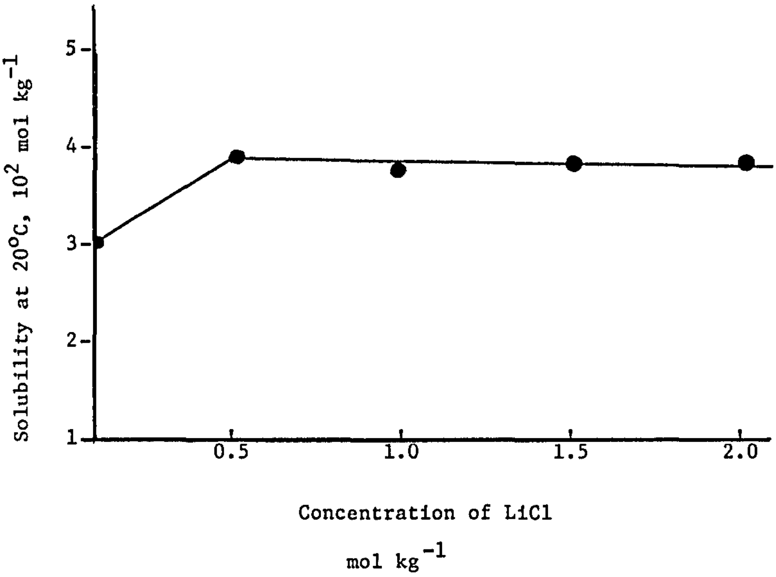
Concentration of LiCl

T/K = 293

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Satd solns of sulfanilamide were prepd in 50-ml tightly closed ampuls in which 20 ml of a LiCl soln was placed and a small excess of sulfanilamide. the mixts were equilibrated for 18 h at 20°C. Aliquots were pipetted out through a filter, diluted, and assayed spectrophotometrically at 285 nm on a SF-IV spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was recrystd. Its purity was 99.22%. LiCl was purified by a recommeded procedure (1).

Purity of the water was not specified.

ESTIMATED ERROR:

Soly: measurements were repeated several times (authors).

Temp: ±0.1°C (authors).

REFERENCES:

1. Karysakin, Ya. V.; Angelov, I. I. *Chistye khimicheskye reaktivy*, Moscow, 1955.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Sodium chloride; NaCl; [7647-14-5] (3) Water; H_2O; [7732-18-5]	Becher, R.; Leya, S. *Experientia* 1946, *2*, 459-60.
VARIABLES:	PREPARED BY:
One temperature: 18-19°C	R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 5% NaCl solution at room temperature (18-19°C) is 610 mg% (3.5×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
After standing for more than two days the soln of sulfanilamide was filtered and sulfanilamide was assayed in the filtrate colorimetrically by the method of Druey and Oesterheld (1).	Nothing specified.
	ESTIMATED ERROR: Nothing specified.
	REFERENCES: 1. Druey, J.; Oesterheld, G. *Helv. Chim. Acta* 1942, *25*, 753.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Sodium chloride; NaCl; [7647-14-5] (3) Water; H_2O; [7732-18-5]	Langecker, H. *Arch. Exptl. Fath. Pharmakol.* 1948, *205*, 291-301.
VARIABLES:	**PREPARED BY:**
One temperature: 37°C	R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in physiological saline (0.9% w/w NaCl solution) at 37°C is 1098 mg% (6.376×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of sulfanilamide was added to physiological saline and boiled for 1 h in a sealed ampul followed by keeping the ampul at 37°C. Sulfanilamide was assayed colorimetrically by the method of Bratton and Marshall (1) using a Havemann colorimeter (2), and by microanal detn of the solid residue.

SOURCE AND PURITY OF MATERIALS:

Source and purity of sulfanilamide was not specified.
The water was free of oxidants.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Bratton, A.G.; Marshall, E.K. *J. Biol. Chem.* 1939, *128*, 537.
2. Havemann, R. *Klin. Wochenschr.* 1940, *p. 503.*

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Sodium chloride; NaCl; [7647-14-5]

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

ORIGINAL MEASUREMENTS:

Matsuura, H.; Sekiguchi, K.

Yakuzaigaku 1960, *20*, 213-18

VARIABLES:

Concentration of NaCl

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of NaCl Formula weight/L	Solubility of sulfanilamide at 25°C	
	g/100 ml	10^2 mol/L
0	0.782	4.55
0.5	0.720	4.18
1.0	0.623	3.77
1.5	0.580	3.37
2.0	0.470	2.94
2.5	0.387	2.25
3.0	0.244	1.58

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added to NaCl solns in such amts as to obtain satn. The mixts were agitated for more than 9 h. Aliquots were withdrawn with a pipet fitted with a filter and sulfanilamide was detd spectrophotometrically using the Tsuda reagent for producing color.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was of the Japanese Pharmacopeia grade and was recrystd. NaCl was an extra pure reagent conforming to the first degree of the Japanese Industrial Standard.

Purity of the water was not specified.

ESTIMATED ERROR:

Soly: the error was 1.5% (authors).

Temp: ±0.05°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Sodium chloride; NaCl; [7647-14-5]

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

ORIGINAL MEASUREMENTS:

Likholet, M. N.; Gusyakov, V. P.

Med. Prom. SSSR 1963, *17(5)*, 28-31.

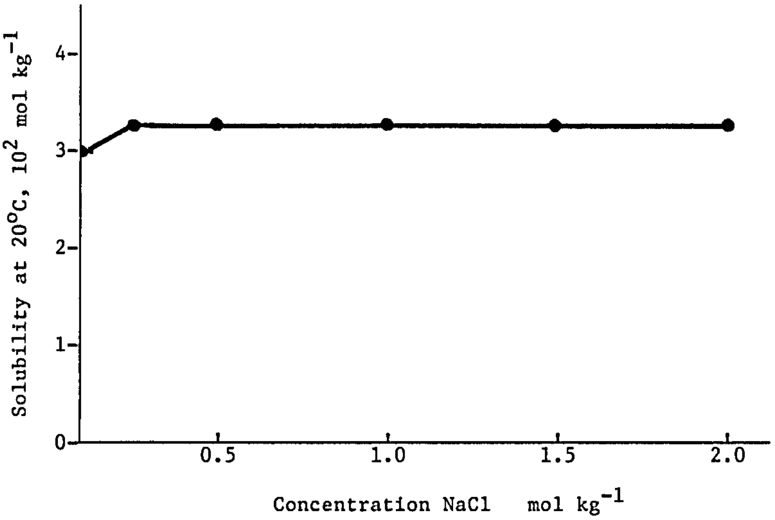
VARIABLES:

Concentration of NaCl

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Satd solns of sulfanilamide were prepd in 50-ml tightly closed ampuls in which 20 ml of a NaCl soln was placed and as small excess of sulfanilamide. The mixts were equilibrated for 18 h at 20°C. Aliquots were pipetted out through a filter, diluted and assayed spectrophotometrically at 285 nm on SF-IV spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was recrystd. Its purity was 99.22%. NaCl was purified by a recommended procedure (1).

Purity of the water was not specified.

ESTIMATED ERROR:

Soly: measurements were repeated several times (authors).

Temp: ±0.1°C (authors).

REFERENCES:

1. Karyakin, Ya. V.; Angelov, I. I. *Chistye khimicheskye reaktivy*, Moscow, 1955.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Sodium bromide; NaBr; [7647-15-6]

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

ORIGINAL MEASUREMENTS:

Matsuura, H.; Sekiguchi, K.
Yakuzaigaku 1960, *20*, 213-18.

VARIABLES:

Concentration of NaBr

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of NaBr Formula weight/L	Solubility of sulfanilamide at 25°C	
	g/100 ml	10^2 mol/L
0	0.782	4.55
0.448	0.786	4.57
0.673	0.778	4.52
0.345	0.784	4.58
2.018	0.786	4.56
2.690	0.788	4.58
3.363	0.767	4.45
3.766	0.750	4.36
5.380	0.692	4.02

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added to NaBr solns in such amts as to obtain satn. The mixts were agitated for more than 9 h. Aliquots were withdrawn with a pipet fitted with a filter and sulfanilamide was detd spectrophotometrically using the Tsuda reagent for producing color.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was of the Japanese Pharmacopeia grade and was recrystd. NaBr was an extra pure reagent conforming to the first degree of the Japanese Industrial Standard.

Purity of the water was not specified.

ESTIMATED ERROR:

Soly: the error was 1.5% (authors).

Temp: ±0.05°C (authors).

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Sodium iodide; NaI; [7681-82-5] (3) Water; H_2O; [7732-18-5]	Matsuura, H.; Sekiguchi, K. *Yakuzaigaku* 1960, *20*, 213-18.
VARIABLES:	**PREPARED BY:**
Concentration of NaI	R. Piekos

EXPERIMENTAL VALUES:

Concentration of NaI		Solubility of sulfanilamide at 25°C	
g/100 ml	Formula wt/L	g/100 ml	10^2 mol/L
0	0	0.782	4.55
0.683	0.456	0.858	4.98
4.10	0.941	0.895	5.20
18.07	1.205	0.963	5.59
23.13	1.543	1.044	6.06
33.35	2.225	1.219	7.08
43.25	2.885	1.343	7.97

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added to NaI solns in such amts as to obtain satn. The mixts were agitated for more than 9 h. Aliquots were withdrawn with a pipet fitted with a filter and sulfanilamide was detd spectrophotometrically using the Tsuda reagent for producing color.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was of the Japanese Pharmacopeia grade and was recrystd. NaI was an extra pure reagent conforming to the first degree of the Japanese Industrial Standard.

Purity of the water was not specified.

ESTIMATED ERROR:

Soly: the error was 1.5% (authors).

Temp: ±0.05°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Carbonic acid, monosodium salt; $NaHCO_3$; [144-55-8]

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

ORIGINAL MEASUREMENTS:

Takubo, T.; Matsumaru, H.; Tsuchiya, S.; Hiura, M. *Chem. Pharm. Bull.* 1973, *21(7)*, 1440-5.

VARIABLES:

One temperature: 37°C; one pH: 8.4

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a $NaHCO_3$ solution (1.680 g $NaHCO_3$/100 ml water) of pH 8.4 at 37°C is 13.82 mg/ml solution[a] (8.026 x 10^{-2} mol dm^{-3} solution, compiler).

[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 $NaHCO_3$ soln were placed in glass-stoppered flasks with excess of sulfanilamide. The flasks were allowed to stand at 37$\pm$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 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 $NaHCO_3$ was not specified.

Distd water was used.

ESTIMATED ERROR:

Soly and pH: not specified.

Temp: $\pm$1°C (authors).

REFERENCES:

1. Takubo, T.; Tsuchiya, S.; Hiura, M. *Yakuzaigaku* 1971, *31*, 298.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Carbonic acid, disodium salt; Na_2CO_3; [497-19-8]

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

ORIGINAL MEASUREMENTS:

Takubo, T.; Matsumaru, H.; Tsuchiya, S.; Hiura, M. *Chem. Pharm. Bull.* 1973, *21(7)*, 1440-5.

VARIABLES:

One temperature: 37°C; one pH: 11.3

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a Na_2CO_3 solution (2.120 g Na_2CO_3/100 ml water) of pH 11.3 at 37°C is 15.39 mg/ml solution[a] (8.937 x 10^{-2} mol dm^{-3} solution, compiler).

[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 Na_2CO_3 soln were placed in glass-stoppered flasks with excess of sulfanilamide. 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 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 Na_2CO_3 was not specified.

Distd water was used.

ESTIMATED ERROR:

Soly and pH: not specified.

Temp: ±1°C (authors).

REFERENCES:

1. Takubo, T.; Tsuchiya, S.; Hiura, M. *Yakuzaigaku* 1971, *31*, 298.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

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

ORIGINAL MEASUREMENTS:

Krüger-Thiemer, E.

Arch. Dermatol. Syphilis 1942, *183*, 90-116.

VARIABLES:

One temperature: ca 20°C; one pH: 8.74

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 0.705 M (10%) Na_2HPO_4 solution of pH 8.74, at room temperature (about 20°C), is 0.57 g% (3.3×10^{-2} mol dm^{-3} solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide (0.5 g) was dissolved in 10 cm^3 of a 0.705M (10%) Na_2HPO_4 soln, shaken for 2 h, and filtered. A 1-cm^3 aliquot of the filtrate was then withdrawn, cooled, acidified with 2N HCl, and the sulfanilamide content was detd colorimetrically by the method of Marshall modified by Kimmig (1) using an Autenrieth colorimeter. The pH was detd on an ultra-ionograph using a glass electrode.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was the product manufd by Schering AG. 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- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Potassium chloride; KCl; [7747-40-7]

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

ORIGINAL MEASUREMENTS:

Gusyakov, V.P.; Likhol'ot, N.M.

Farm. Zh. (Kiev) 1960, *15(3)*, 21-4.

VARIABLES:

Concentration of KCl

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of KCl	Solubility at 20°C	
Weight %	g/100 g water	10^2 mol kg^{-1}[a]
0.74	0.656	3.81
1.82	0.662	3.84
3.59	0.700	4.07
6.93	0.763	4.43
12.97	0.771	4.48
15.70	0.818	4.75

[a] calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A small excess of sulfanilamide was equilibrated for 8 h in a 50-ml test tube with 20 ml of aqueous KCl soln. Aliquots were taken with a pipet fitted with a filter. Sulfanilamide was detd in the filtrate at 285 nm using a SF-4 spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was crystd three times from hot water. Its purity conformed to the requirements of the State Pharmacopeia VIII. KCl was doubly crystd. Purity of the water was not specified.

ESTIMATED ERROR:

Soly: the accuracy corresponded to that of colorimetric detns (authors).

Temp: not specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Potassium chloride; KCl; [7447-40-7]

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

ORIGINAL MEASUREMENTS:

Likholet, N. M.; Gusyakov, V. P.

Med. Prom. SSSR 1963, *17(5)*, 28-31.

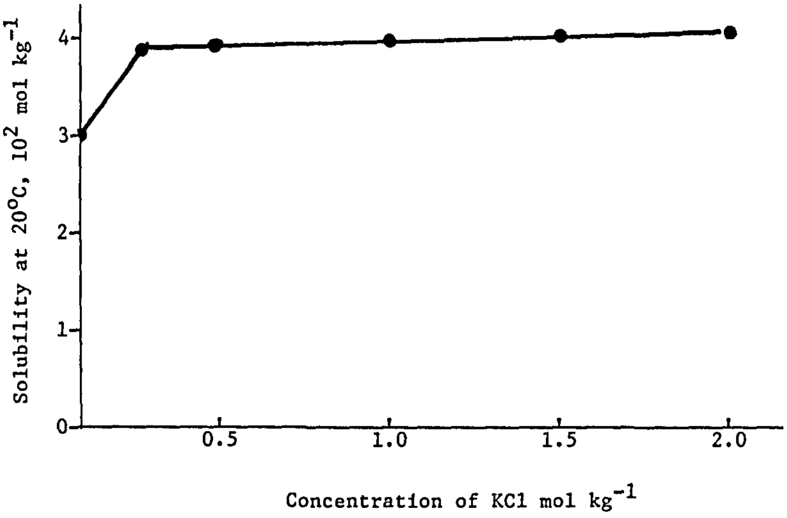
VARIABLES:

Concentration of KCl

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Satd solns of sulfanilamide were prepd in 50-ml tightly closed ampuls in which 20 ml of a KCl was placed and a small excess of sulfanilamide. The mixts were equilibrated for 18 h at 20°C. Aliquots were pipetted out through a filter, dild, and assayed spectrophotometrically at 285 nm on a SF-IV spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was recrystd. Its purity was 99.22%. KCl was purified by a recommended procedure (1).

Purity of the water was not specified.

ESTIMATED ERROR:

Soly: measurements were repeated several times (authors).

Temp: ±0.1°C (authors).

REFERENCES:

1. Karyakin, Ya. V.; Angelov, I. I. *Chistye khimicheskye reaktivy*, Moscow, 1955.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Potassium bromide; KBr; [7759-02-3]

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

ORIGINAL MEASUREMENTS:

Gusyakov, V.P.; Likhol'ot, N.M.

Farm. Zh. (Kiev) 1960, *15(3)* 21-4

VARIABLES:

Concentration of KBr

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of KBr	Solubility at 20°C	
Weight %	g/100 g water	10^2 mol kg^{-1} [a]
1.17	0.738	4.29
2.88	0.739	4.29
5.61	0.798	4.63
10.63	0.844	4.90
19.22	0.993	5.77

[a] calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A small excess of sulfanilamide was equilibrated for 8 h in a 50-ml test tube with 20 ml of aqueous KBr soln. Aliquots were taken with a pipet fitted with a filter. Sulfanilamide was detd in the filtrate at 285 nm using a SF-4 spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was crystd three times from hot water. Its purity conformed to the requirements of the State Pharmacopeia VIII. KBr was doubly crystd. Purity of the water was not specified.

ESTIMATED ERROR:

Soly: the accuracy corresponded to that of colorimetric detns (authors).

Temp: not specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Potassium bromide; KBr; [7758-02-3]

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

ORIGINAL MEASUREMENTS:

Likholet, N. M.; Gusyakov, V. P.

Med. Prom. SSSR 1963, *17(5)*, 28-31.

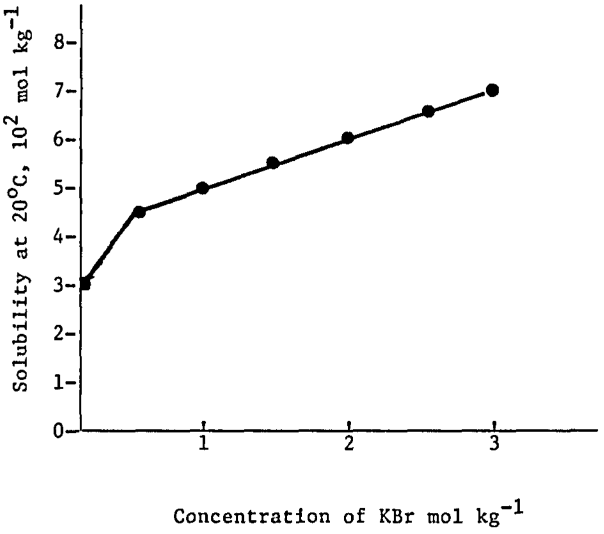
VARIABLES:

Concentration of KBr

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Satd solns of sulfanilamide were prepd in 50-ml tightly closed ampuls in which 20 ml of a KBr soln was placed and a small excess of sulfanilamide. The mixts were equilibrated for 18 h at 20°C. Aliquots were pipetted out through a filter, dild, and assayed spectrophotometrically at 285 nm on a SF-IV spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was recrystd. Its purity was 99.22%. KBr was purified by a recommended procedure (1).

Purity of the water was not specified.

ESTIMATED ERROR:

Soly: measurements were repeated several times (authors).

Temp: ±0.1°C (authors).

REFERENCES:

1. Karyakin, Ya. V.; Angelov, I. I. *Chistye khimicheskye reaktivy*, Moscow, 1955.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Potassium iodide; KI; [7681-11-0]

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

ORIGINAL MEASUREMENTS:

Gusyakov, V.P.; Likhol'ot, N.M.

Farm. Zh. (Kiev) 1960, *15(3)* 21-4

VARIABLES:

Concentration of KI

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of KI	Solubility at 20°C	
Weight %	g/100 g water	10^2 mol kg^{-1}[a]
1.63	0.724	4.20
3.98	0.762	4.43
7.66	0.833	4.84
14.23	1.023	5.94

[a] calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A small excess of sulfanilamide was equilibrated for 8 h in a 50-ml test tube with 20 ml of aqueous KI soln. Aliquots were taken with a pipet fitted with a filter. Sulfanilamide was detd in the filtrate at 285 nm using a SF-4 spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was crystd three times from hot water. Its purity conformed to the requirements of the State Pharmacopeia VIII. KI was doubly crystd. Purity of the water was not specified.

ESTIMATED ERROR:

Soly: the accuracy corresponded to that of colorimetric detns (authors).

Temp: not specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Potassium iodide; KI; [7681-11-0]

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

ORIGINAL MEASUREMENTS:

Likholet, M. N.; Gusyakov, V. P.

Med. Prom. SSSR 1963, *17(5),* 28-31.

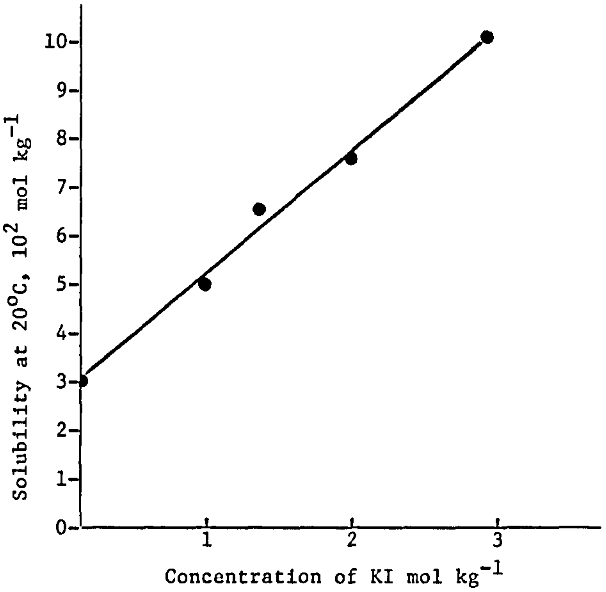
VARIABLES:

Concentration of KI

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Satd solns of sulfanilamide were prepd in 50-ml tightly closed ampuls in which 20 ml of a KI soln was placed and a small excess of sulfanilamide. The mixts were equilibrated for 18 h at 20°C. Aliquots were pipetted out through a filter, dild, and assayed spectrophotometrically at 285 nm on a SF-IV spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was recrystd. Its purity was 99.22%. KI was purified by a recommended procedure (1).

Purity of the water was not specified.

ESTIMATED ERROR:

Soly: measurements were repeated several times (authors).

Temp: ±0.1°C (authors).

REFERENCES:

1. Karyakin, Ya. V.; Angelov, I. I. *Chistye khimicheskye reaktivy,* Moscow, 1955.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]
(2) Potassium thiocyanate; KSCN; [333-20-0]
(3) Water; H_2O; [7732-18-5]

ORIGINAL MEASUREMENTS:

Gusyakov, V.P.; Likhol'ot, N.M.
Farm. Zh. (Kiev) 1960, *15(3)*, 21-4.

VARIABLES:

Concentration of KSCN

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of KSCN	Solubility at 20°C	
Weight %	g/100 g water	10^2 mol kg^{-1} [a]
0.96	0.757	4.40
2.37	0.784	4.55
4.63	0.851	4.94
8.85	1.101	6.39

[a] calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A small excess of sulfanilamide was equilibrated for 8 h in a 50-ml test tube with 20 ml of aqueous KSCN soln. Aliquots were taken with a pipet fitted with a filter. Sulfanilamide was detd in the filtrate at 285 nm using a SF-4 spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was crystd three times from hot water. Its purity conformed to the requirements of the State Pharmacopeia VIII. KSCN was doubly crystd. Purity of the water was not specified.

ESTIMATED ERROR:

Soly: the accuracy corresponded to that of colorimetric detns (authors).
Temp: not specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Thiocyanic acid, potassium salt; KCNS; [333-20-0]

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

ORIGINAL MEASUREMENTS:

Likholet, M. N.; Gusyakov, V. P.

Med. Prom. SSSR 1963, *17(5)*, 28-31.

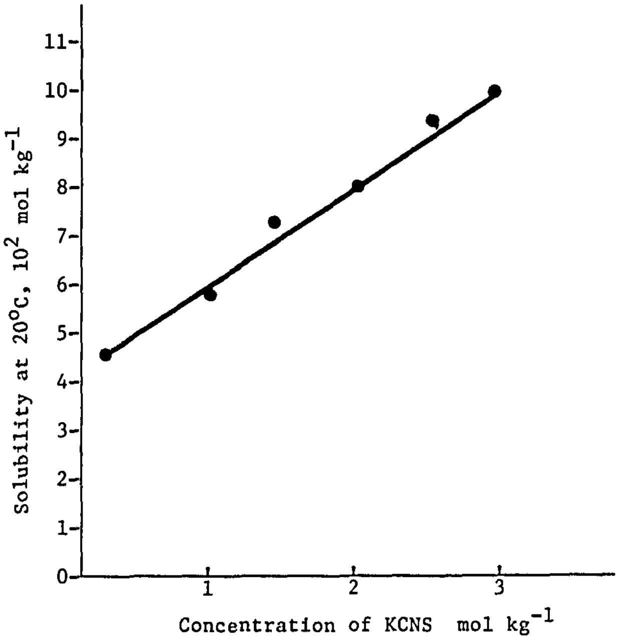
VARIABLES:

Concentration of KCNS

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Satd solns of sulfanilamide were prepd in 50-ml tightly closed ampuls in which 20 ml of a KCNS soln was placed and a small excess of sulfanilamide. The mixts were equilibrated for 18 h at 20°C. Aliquots were pipetted out through a filter, dild, and assayed spectrophotometrically at 285 nm on a SF-IV spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was recrystd. Its purity was 99.22%. KCNS was purified by a recommended procedure (1).

Purity of the water was not specified.

ESTIMATED ERROR:

Soly: measurements were repeated several times (authors).

Temp: ±0.1°C

REFERENCES:

1. Karyakin, Ya. V.; Angelov, I. I. *Chistye khimicheskye reaktivy*, Moscow, 1955.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Phosphoric acid, monopotassium salt; KH_2PO_4; [7778-77-0] (3) Water; H_2O; [7732-18-5]	Krüger-Thiemer, E. *Arch. Dermatol. Syphilis* 1942, *183*, 90-116.
VARIABLES:	PREPARED BY:
One temperature: ca 20°C; one pH: 4.37	R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 0.735 M (10%) KH_2PO_4 solution of pH 4.37, at room temperature (about 20°C) is 0.572 g% (3.32×10^{-2} mol dm^{-3} solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide (0.5 g) was dissolved in 10 cm^3 of a 0.735 M(10%) KH_2PO_4 soln, shaken for 2 h, and filtered. A 1-cm^3 aliquot of the filtrate was then withdrawn, cooled, acidified with 2 N HCl, and the sulfanilamide content was detd colorimetrically the method of Marshall modified by Kimmig (1) using an Authenreith colorimeter. The pH was detd on an ultraionograph using a glass electrode.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was the product manufd by Schering AG. 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- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Ammonium chloride; NH_4Cl; [12125-02-9]

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

ORIGINAL MEASUREMENTS:

Likholet, M. N.; Gusyakov, V. P.

Med. Prom. SSSR 1963, *17(5)*, 28-31.

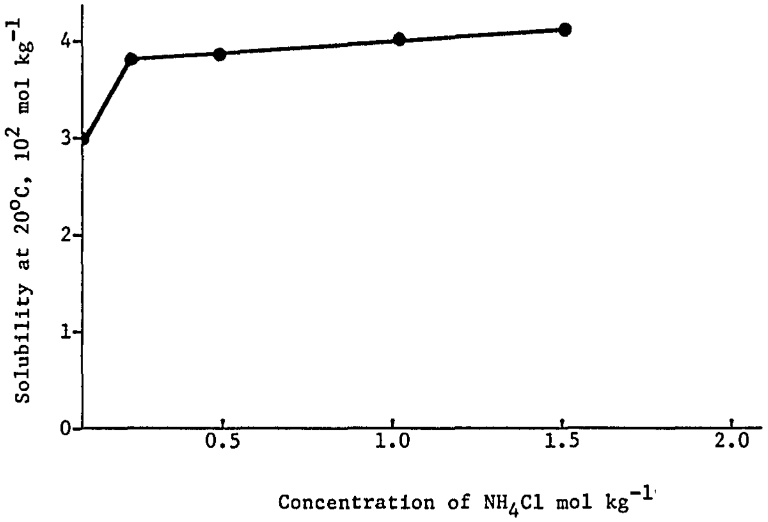
VARIABLES:

Concentration of NH_4Cl

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Satd solns of sulfanilamide were prepd in 50-ml tightly closed ampuls in which 20 ml of a NH_4Cl soln was placed and a small excess of sulfanilamide. The mixts were equilibrated for 18 h at 20°C. Aliquots were pipetted out through a filter, dild, and assayed spectrophotometrically at 285 nm on a SF-IV spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was recrystd. Its purity was 99.22%. NH_4Cl was purified by a recommended procedure (1).

Purity of the water was not specified.

ESTIMATED ERROR:

Soly: measurements were repeated several times (authors).

Temp: ±0.1°C (authors).

REFERENCES:

1. Karyakin, Ya. V.; Angelov, I. I. *Chistye khimicheskye reaktivy*, Moscow, 1955.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Magnesium chloride; $MgCl_2$; [7786-30-3]

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

ORIGINAL MEASUREMENTS:

Likholet, M. N.; Gusyakov, V. P.

Med. Prom. SSSR 1963, *17(5)*, 28-31.

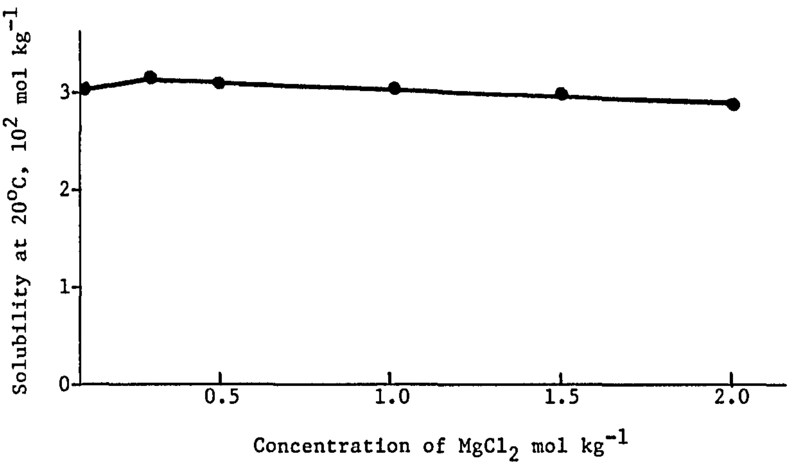
VARIABLES:

Concentration of $MgCl_2$

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Satd solns of sulfanilamide were prepd in 50-ml tightly closed ampuls in which 20 ml of a $MgCl_2$ soln was placed and a small excess of sulfanilamide. The mixts were equilibrated for 18 h at 20°C. Aliquots were pipetted out through a filter, dild, and assayed spectrophotometrically at 285 nm on a SF-IV spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was recrystd. Its purity was 99.22%. $MgCl_2$ was purified by a recommended procedure (1).

Purity of the water was not specified.

ESTIMATED ERROR:

Soly: measurements were repeated several times (authors).

Temp: ±0.1°C (authors).

REFERENCES:

1. Karyakin, Ya. V.; Angelov, I. I. *Chistye khimicheskye reaktivy,* Moscow, 1955.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Calcium chloride; $CaCl_2$; [10043-52-4]

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

ORIGINAL MEASUREMENTS:

Likholet, M. N.; Gusyakov, V. P.

Med. Prom. SSSR 1963, *17(5)*, 28-31.

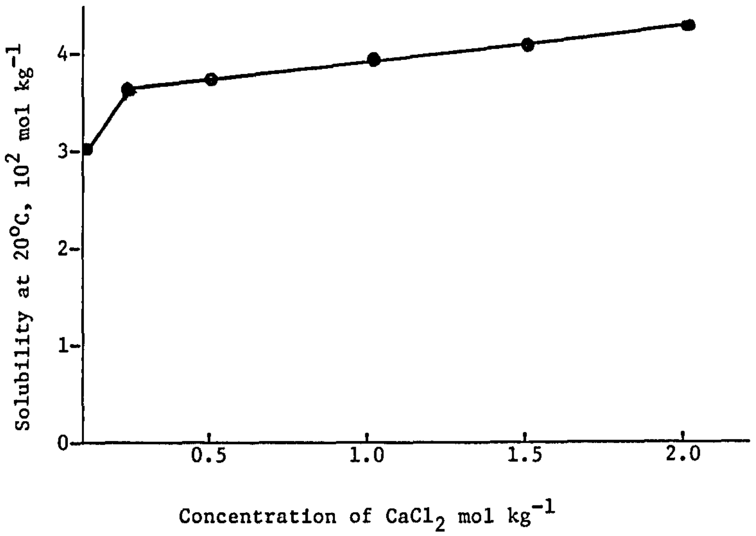
VARIABLES:

Concentration of $CaCl_2$

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Satd solns of sulfanilamide were prepd in 50-ml tightly closed ampuls in which 20 ml of a $CaCl_2$ soln was placed and a small excess of sulfanilamide. The mixts were equilibrated for 18 h at 20°C. Aliquots were pippeted out through a filter, dild, and assayed spectrophotometrically at 285 nm on a SF-IV spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was recrystd. Its purity was 99.22%. $CaCl_2$ was purified by a recommended procedure (1).

Purity of the water was not specified.

ESTIMATED ERROR:

Soly: measurements were repeated several times (authors).

Temp: ±0.1 (authors).

REFERENCES:

1. Karyakin, Ya. V.; Angelov, I. I. *Chistye khimicheskye reaktivy*, Moscow, 1955.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Barium chloride; $BaCl_2$; [10361-37-2]

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

ORIGINAL MEASUREMENTS:

Likholet, M. N.; Gusyakov, V. P.

Med. Prom. SSSR 1963, *17(5)*, 28-31.

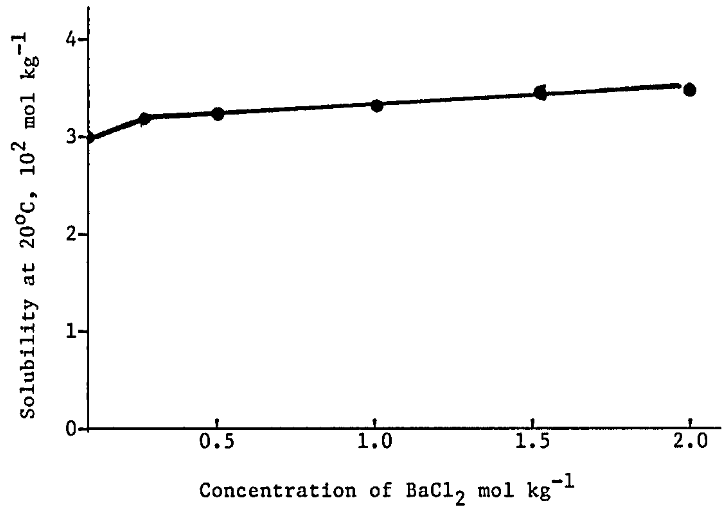
VARIABLES:

Concentration of $BaCl_2$

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Satd solns of sulfanilamide was prepd in 50-ml tightly closed ampuls in which 20 ml of a $BaCl_2$ soln was placed and a small excess of sulfanilamide. The mixts were equilibrated for 18 h at 20°C. Aliquots were pipetted out through a filter, dild, and assayed spectrophotometrically at 285 nm on a SF-IV spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was recrystd. Its purity was 99.22%. $BaCl_2$ was purified by a recommended procedure (1).

Purity of the water was not specified.

ESTIMATED ERROR:

Soly: measurements were repeated several times (authors).

Temp: ±0.1°C (authors).

REFERENCES:

1. Karyakin, Ya. V.; Angelov, I. I. *Chistye khimicheskye reaktivy* Moscow, 1955.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(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]

ORIGINAL MEASUREMENTS:

Krüger-Thiemer, E.

Arch. Dermatol. Syphilis 1942, *183*, 90-116.

VARIABLES:

Temperature, pH

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Composition of 1/15M phosphate buffer solutions			pH	Solubility			
				room temp (ca 20°C)		37°C	
Na_2HPO_4	KH_2PO_4	%Content		g%	10^2 mol dm^{-3} solution[a]	g%	10^2 mol dm^{-3} solution[a]
1.0	99.0	0.91	4.944	0.694	4.03	-	-
10.0	90.0	0.91	5.906	0.704	4.09	1.220	7.08
61.1	38.9	0.93	7.005	0.698	4.05	1.260	7.32
9.5	0.5	0.733[b]	7.51	0.573	3.33	-	-
94.7	5.3	0.95	8.018	0.694	4.03	-	-

[a] Calculated by compiler

[b] Molar content; 10% buffer solution

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide (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 2N HCl, and the sulfanilamide content was detd colorimetrically by the method of Marshall modified by Kimmig (1, 2) using an Autenrieth colorimeter. The pH was detd on an ultraionograph using a glass electrode.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was the product manufd by Schering AG. 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.
2. Kimmig, J. *Erg. Hyg.* 1941, *24*, 398.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Phosphoric acid, disodium salt; Na_2HPO_4; [7778-94-4]

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

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

ORIGINAL MEASUREMENTS:

Kienle, R.H.; Sayward, J.M.

J. Am. Chem. Soc. 1942, *64*, 2464-8.

VARIABLES:

One temperature: 37°C; one pH: 6.9

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a buffer solution prepared by mixing together 55.2 cm^3 of 1/15 M Na_2HPO_4 with 44.8 cm^3 of 1/15 M KH_2PO_4 (pH 6.9, ionic strength calculated from dissociation constants 0.03[a]) at 37.0°C is 1.44 g/100 cm^3 solution (8.36×10^{-2} mol dm^{-3}, compiler).

[a] Not specified for which reactions were the dissociation constants calculated - compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of sulfanilamide was rotated with the buffer soln usually overnight. Equilibrium was approached from above. Sampling was accomplished by forcing the soln through a filter into a pycnometer. From the pycnometer the contents were flushed into a volumetric flask. Duplicate aliquots were acidified, iced below 15°C and titrated with a 0.04 mol dm^{-3} $NaNO_2$ soln to first blue on a starch - iodide paper.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (U.S.P.) from plant production was recrystd from alcohol and from hot water; mp 165.9°C. Titrn with nitrite indicated that the compd was 100.0±0.3% pure. Elemental analysis confirmed this value.

Source and purity of the remaining materials was not specified.

ESTIMATED ERROR:

Soly: ±0.01 g/100 g soln or $\pm 0.012 \times 10^{-3}$ in mole fraction (authors).

Temp: ±0.02°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide) $C_6H_8N_2O_2S$; [63-74-1]
(2) Phosphoric acid, disodium salt; Na_2HPO_4; [7558-94-4]
(3) Phosphoric acid, monopotassium salt; KH_2HPO_4; [7778-77-0]
(4) Water; H_2O; [7732-18-5]

ORIGINAL MEASUREMENTS:

Langecker, H.

Arch. Exptl. Path. Pharmakol. 1948, *205*, 291-301.

VARIABLES:

pH

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

pH of the 1/15M phosphate buffer	Solubility at 37°C mg%	Solubility at 37°C 10^2 mol dm^{-3a}
4.9	1064	6.179
5.9	1050	6.097
6.9	1023	5.941
7.5	1167	6.777

[a] Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of sulfanilamide was added to buffer solution and boiled for 1 h in a sealed ampul at 37°C. Sulfanilamide was assayed colorimetrically by the method of Bratton and Marshall (1) using a Havemann colorimeter (2), and 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:

1. Bratton, A.G.; Marshall, E.K. *J. Biol. Chem.* 1939, *128*, 537.
2. Havemann, R. *Klin. Wochenschr.* 1940, p. 503.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(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]

ORIGINAL MEASUREMENTS:

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

Yakuzaigaku 1967, *27(1)*, 37-40.

VARIABLES:

One temperature: 30°C; one pH: 7.4

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a phosphate buffer solution of pH 7.4 ($\mu = 0.17$) at 30°C is 57.0 mmol/L (9.815 g dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide (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 sulfanilamide 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 and pH: not specified.

Temp: ±1°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Carbonic acid, disodium salt; Na_2CO_3; [497-19-8]

(3) Carbonic acid, monosodium salt; $NaHCO_3$; [144-55-8]

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

ORIGINAL MEASUREMENTS:

Takubo, T.; Matsumaru, H.; Tsuchiya, S.; Hiura, M. *Chem. Pharm. Bull.* 1973, *21(7)* 1440-5.

VARIABLES:

pH

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Na_2CO_3	$NaHCO_3$	pH	Solubility at 37°C	
g/100 ml water	g/100 ml water		mg/ml soln[a]	10^2 mol dm^{-3} soln[b]
0.212	1.512	9.1	13.99	8.124
0.848	1.008	9.8	14.95	8.682
1.908	0.168	10.7	14.26	8.281

[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 the buffer solns were placed in glass-stoppered flasks with excess of sulfanilamide. 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 the sulfanilamide was assayed by the previously reported method (1).

SOURCE AND PURITY OF MATERIALS:

The sulfanilamide was of pharmaceutical grade. The source and purity of Na_2CO_3 and $NaHCO_3$ was not specified. Distd water was used.

ESTIMATED ERROR:

Soly and pH: not specified.

Temp: ±1°C (authors).

REFERENCES:

1. Takubo, T.; Tsuchiya, S.; Hiura, M. *Yakuzaigaku* 1971, *31*, 298.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Hydrochloric acid; HCl; [7647-14-5]

(3) Sodium chloride; NaCl; [7647-14-5]

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

ORIGINAL MEASUREMENTS:

Avico, U.; Cavazutti, G.; di Francesco, R.; Signoretti Ciranni, E.; Zuccaro, P.

Farmaco, Ed. Pratica 1975, *30(1)*, 40-6.

VARIABLES:

Temperature

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

t/°C	Solubility of amorphous sulfanilamide in equimolal NaCl solutions containing a small excess of HCl	
	g/100 g water	10^2 mol kg^{-1} water[a]
25	4.72	2.74
35	6.50	3.78
40	7.40	4.30

[a] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A soln of sulfanilamide-HCl was added to an NaOH soln contg stoichiometric quantity of the base to neutralize the HCl salt. A small excess of HCl was used to dissolve the sulfanilamide. The neutralization was carried out in a thermostat and the pH of the mixt was maintained close to that of a satd aq sulfanilamide soln. The procedure was repeated using various initial concns of the reagents to find the max concn of sulfanilamide at which no pptn occurred.

SOURCE AND PURITY OF MATERIALS:

Source and purity of sulfanilamide was not specified. The mp of crystalline sulfanilamide was 164.5-6.5°C. Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-
(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]
(2) Hydrochloric acid; HCl; [7647-01-0]
(3) Potassium chloride; KCl; [7447-40-7]
(4) Water; H_2O; [7732-18-5]

ORIGINAL MEASUREMENTS:

Kienle, R. H.; Sayward, J. M.

J. Am. Chem. Soc. 1942, *64*, 2464-8.

VARIABLES:

pH; ionic strength

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

pH of HCl-KCl	Ionic strength[a]	Solubility at 37.0°C g/100 cm^3	Solubility at 37.0°C mol dm^{-3}[b]
1.2	0.12	4.07	0.236
2.2	0.06	1.57	0.091

[a] calculated from dissociation constants.

[b] calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of sulfanilamide was rotated with a buffer soln usually overnight. Equilibrium was approached usually from above. Sampling was accomplished by forcing the soln through a filter into a pycnometer. From the pycnometer the contents were flushed into a volumetric flask. Duplicate aliquots were acidified, iced below 15°C and titrated with a 0.04 mol dm^{-3} $NaNO_2$ soln to first blue on starch - iodide paper.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (U.S.P.) from plant production was recrystd from alcohol and from hot water; mp 165.9°C. Titrn with nitrite indicated that the compd was 100±0.3% pure. Elemental analysis and mixed mp detns confirmed this value. Purity of the remaining materials was not specified.

ESTIMATED ERROR:

Soly: ±0.01 g/100 g soln or $\pm 0.012 \times 10^{-3}$ in mole fraction (authors).

Temp: ±0.02°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Boric acid, H_3BO_3; [10043-35-3]

(3) Potassium chloride; KCl; [7447-40-7]

(4) Sodium hydroxide; NaOH; [1310-73-2]

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

ORIGINAL MEASUREMENTS:

Kienle, R. H.; Sayward, J. M.

J. Am. Chem. Soc. 1942, *64*, 2464-8.

VARIABLES:

pH; ionic strength

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

pH of borate buffer	Ionic strength[a]	Solubility at 37.0°C	
		g/100 cm^3 solution	10^2 mol dm^{-3}[b]
9.4[c]	0.08	1.55	9.00
9.7[d]	0.09	1.60	9.29

[a] Calculated from dissociation constants (reactions not specified).

[b] Calculated by compiler.

[c] Obtained by mixing together 50 cm^3 of a 0.1 M solution in both H_3BO_3 and KCl with 32.1 cm^3 of 0.1 M NaOH and diluting with water up to 100 cm^3.

[c] Obtained by mixing together 50 cm^3 of a 0.1 M solution in both H_3BO_3 and KCl with 38.75 cm^3 of a 0.1 M NaOH and diluting with water up to 100 cm^3.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of sulfanilamide was rotated with the buffer soln usually overnight. Equilibrium was approached from above. Sampling was accomplished by forcing the soln through a filter into a pycnometer. From the pycnometer the contents were flushed into a volumetric flask. Duplicate aliquots were acidified, iced below 15°C and titrated with a 0.04 mol dm^{-3} $NaNO_2$ soln to first blue on a starch - iodide paper.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (U.S.P.) from plant production was recrystd from alcohol and from hot water; mp 165.9°C. Titrn with nitrite indicated that the compd was $100.0\pm0.3\%$ pure. Elemental analysis confirmed this value.

Source and purity of the remaining materials was not specified.

ESTIMATED ERROR:

Soly: ±0.01 g/100 g soln or $\pm0.012 \times 10^{-3}$ in mole fraction (authors).

Temp: ±0.02°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(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:

Kienle, R. H.; Sayward, J. M.

J. Am. Chem. Soc. 1942, *64*, 2464-8.

VARIABLES:

One temperature: 37°C; one pH: 4.2

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a solution prepared by mixing together 41.4 cm^3 of 0.2 M Na_2HPO_4 with 58.6 cm^3 of 0.1M citric acid (pH 4.2, ionic strength calculated from dissociation constants 0.84[a]) at 37.0°C is 1.40 g/100 cm^3 solution (8.13×10^{-2} mol dm^{-3}, compiler).

[a] Not specified for which reactions were the dissociation constants calculated - compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of sulfanilamide was rotated with the buffer soln usually overnight. Equilibrium was approached from above. Sampling was accomplished by forcing the soln through a filter into a pycnometer. From the pycnometer the contents were flushed into a volumetric flask. Duplicate aliquots were acidified, iced below 15°C and titrated with a 0.04 mol dm^{-3} $NaNO_2$ soln to first blue on a starch - iodide paper.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (U.S.P.) from plant production was recrystd from alcohol and from hot water; mp 165.9°C.

Titrn with nitrite indicated that the compd was 100.0±0.3% pure. Elemental analysis confirmed this value. Source and purity of the remaining materials was not specified.

ESTIMATED ERROR:

Soly: ±0.01 g/100 g soln or $\pm 0.012 \times 10^{-3}$ in mole fraction (authors).

Temp: ±0.02°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(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:

Likhol'ot, N. M. *Farm. Zh. (Kiev)* 1965, *20(5)*, 44-6.

VARIABLES:

pH

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

pH of McIlvaine's buffer solution	Solubility at 20°C	
	g/100 ml	10^2 mol dm^{-3} [a]
4.1	0.525	3.05
5.1	0.504	2.93
5.9	0.488	2.83
6.5	0.475	2.76
6.9	0.467	2.71
7.5	0.458	2.66

[a] calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An earlier described method was employed (1) whereby a small excess of sulfanilamide was equilibrated with the McIlvaine's buffer soln for 8 h in a 50-ml test tube. Aliquots were removed through a filter and sulfanilamide was assayed bromatometrically.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide; not specified.

McIlvaine's buffer solns were prepd from a 0.2M Na_2HPO_4 and a 0.1M citric acid solns. Source and purity of the buffer components were not specified.

ESTIMATED ERROR:

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

REFERENCES:

1. Gusyakov, V. P.; Likhol'ot, N. M. *Farm. Zh. (Kiev)* 1960, *15(8)*, 21.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(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:

Takubo, T.; Matsumaru, H.; Tsuchiya, S.; Hiura, M. *Chem. Pharm. Bull.* 1973, *21(7)* 1440-5.

VARIABLES:

pH

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Citric acid	Na_2HPO_4	pH	Solubility at 37°C	
g/100 ml water	g/100 ml water		mg/ml soln[a]	10^2mol dm^{-3} soln[b]
1.680	0.572	3.1	16.03	9.309
1.260	1.144	4.2	14.40	8.362
0.840	1.716	5.8	13.00	7.549
0.420	2.228	6.8	12.60	7.317

[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 the buffer solns were placed in glass-stoppered flasks with excess of sulfanilamide. 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 the sulfanilamide was assayed by the previously reported method (1).

SOURCE AND PURITY OF MATERIALS:

The sulfanilamide was of pharmaceutical grade. The source and purity of citric acid and Na_2HPO_4 was not specified. Distd water was used.

ESTIMATED ERROR:

Soly and pH: not specified.

Temp: ±1°C (authors).

REFERENCES:

1. Takubo, T.; Tsuchiya, S.; Hiura, M. *Yakuzaigaku* 1971, *31*, 298.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino-(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) 1,2-Benzenedicarboxylic acid, monopotassium salt; $C_8H_5KO_4$; [877-24-7] (3) Hydrochloric acid; HCl; [7647-01-0] (4) Water; H_2O; [7732-18-5]	Kienle, R. H.; Sayward, J. M. *J. Am. Chem. Soc.* 1942, *64*, 2464-8.
VARIABLES:	PREPARED BY:
One temperature: 37.0°C; one pH: 2.2	R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a buffer solution prepared by mixing together 50 cm^3 of 0.1M monopotassium 1,2-benzenedicarboxylate with 49.5 cm^3 of 0.1M HCl and diluting up to 100 cm^3 with water (pH 2.2, ionic strength calculated from dissociation constants 0.06[a]) at 37.0°C is 1.79 g/100 cm^3 solution (0.104 mol dm^{-3}, compiler).

[a] Not specified for which reactions were the dissociation constants calculated - compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of sulfanilamide was rotated with the buffer soln usually overnight. Equilibrium was approached from above. Sampling was accomplished by forcing the soln through a filter into a pycnometer. From the pycnometer the contents were flushed into a volumetric flask. Duplicate aliquots were acidified, iced below 15°C and titrated with a 0.04 mol dm^{-3} $NaNO_2$ soln to first blue on a starch - iodide paper.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (U.S.P.) from plant production was recrystd from alcohol and from hot water; mp 165.9°C. Titrn with nitrite indicated that the compd was 100±0.3% pure. Elemental analysis confirmed this value.

Purity of the remaining materials was not specified.

ESTIMATED ERROR:

Soly: ±0.01 g/100 g soln or ±0.012 x 10^{-3} in mole fraction (authors);

Temp: ±0.02°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Ethanamine, N-ethyl-, (diethylamine); $C_4H_{11}N$; [109-89-7]

(3) Sodium chloride; NaCl; [7647-14-5]

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

ORIGINAL MEASUREMENTS:

Meyer, E. J. E., *Pharm. Weekblad* 1939, *76*, 977-9.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 6.5% diethylamine solution in physiological saline (0.9% aqueous NaCl) solution at 20°C is 6% (0.35 mol kg^{-1} solution, compiler).

[diethylamine] = 0.89 mol kg^{-1}, compiler

[NaCl] = 0.15 mol kg^{-1}, 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- (sulfanilamide) $C_6H_8N_2O_2S$; [63-74-1]

(2) Formic acid, sodium salt; $CHNaO_2$; [141-53-7]

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

ORIGINAL MEASUREMENTS:

Likhol'ot, N. M.; Gusyakov, V. P.

Farm. Zh. (Kiev) 1964, *19(1)*, 52-5.

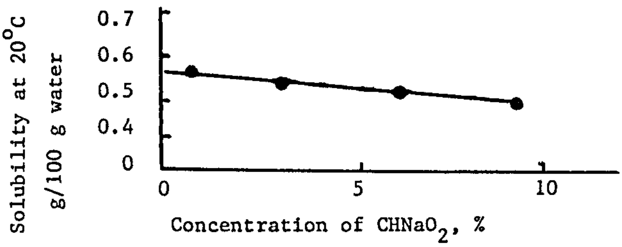
VARIABLES:

Concentration of $CHNaO_2$

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



The solubility in a 1 molal (mol kg^{-1} water, compiler) $CHNaO_2$ solution at 20°C is 0.497 g/100 g water (2.89×10^{-2} mol kg^{-1} water, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The previously described method (1) was employed whereby a small excess of sulfanilamide was equilibrated in a 50-ml test tube with 20 ml of a $CHNaO_2$ soln for 8 h. Aliquots of the satd soln were removed through a filter and sulfanilamide was assayed colorimetrically (2).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (source not specified) was recrystd from water.

$CHNaO_2$ (source not specified) was also recrystd from water.

Purity of the water was not specified.

ESTIMATED ERROR:

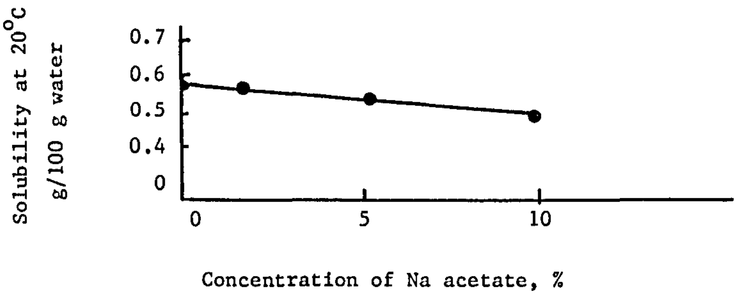
Nothing specified.

REFERENCES:

1. Gusyakov, V. P.; Likhol'ot, N. M. *Farm. Zh. (Kiev)* 1960, *15(3)*, 21.
2. Predtechenskii, B. E.; Borovskaya, V.M.; Margolina, L. T., *Laboratornye metody issledovanya, Medgiz, Moscow,* 1950, p. 371.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Acetic acid, sodium salt (Na acetate); $C_2H_3NaO_2$; [127-09-3] (3) Water; H_2O; [7732-18-5]	Likhol'ot, N. M.; Gusyakov, V. P. *Farm. Zh. (Kiev)* 1964, *19(1)*, 52-5.
VARIABLES: Concentration of Na acetate	PREPARED BY: R. Piekos

EXPERIMENTAL VALUES:



The solubility in a 1 molal (mol kg^{-1} water, compiler) Na acetate solution at 20°C is 0.511 g/100 g water (2.97 x 10^{-2} mol kg^{-1} water, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The previously described method (1) was employed whereby a small excess of sulfanilamide was equilibrated in a 50-ml test tube with 20 ml of a Na acetate soln for 8 h. Aliquots of the satd soln were removed through a filter and sulfanilamide was assayed bromatometrically (2).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (source not specified) was recrystd from water. Na acetate (source not specified) was also recrystd from water.

Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Gusyakov, V. P.; Likhol'ot, N. M. *Farm. Zh. (Kiev)* 1960, *15(3)*, 21.
2. *The Extra Pharmacopeia (Martindale)* 1955, *2(23)*, 353 and 389.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Propanoic acid, sodium salt (Na propionate); $C_3H_5NaO_2$; [137-40-6]

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

ORIGINAL MEASUREMENTS:

Likhol'ot, N. M.; Gusyakov, V. P.

Farm. Zh. (Kiev) 1964, *19(1)* 52-5.

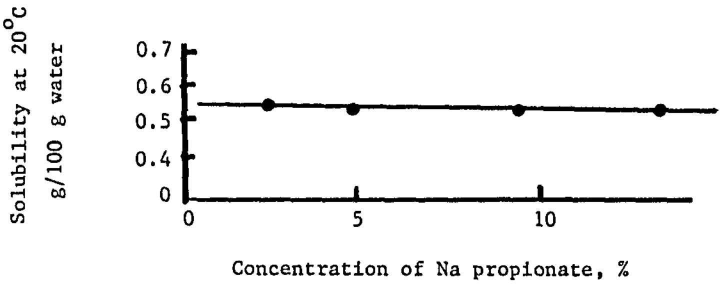
VARIABLES:

Concentration of Na propionate

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



The solubility in a 1 molal (mol kg^{-1} water, compiler) Na propionate solution at 20°C is 0.541 g/100 g water (3.14×10^{-2} mol kg^{-1}water, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The previously described method (1) was used whereby a small excess of sulfanilamide was equilibrated in a 50-ml test tube with 20 ml of a Na propionate soln for 8 h. Aliquots of the satd soln were removed through a filter and sulfanilamide was assayed bromatometrically (2).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was recrystd from water. Its source was not specified. Na propionate was prepd by neutralization of propionic acid (source not specified) with Na_2CO_3 or NaOH.

Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Gusyakov, V. P.; Likhol'ot, N. M. *Farm. Zh. (Kiev)* 1960, *15(3)* 21.
2. *The Extra Pharmacopeia (Martindale)* 1955, *2(23)*, 353 and 389

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Pentanoic acid, sodium salt (Na valerate); $C_5H_9NaO_2$;[6106-41-8]

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

ORIGINAL MEASUREMENTS:

Likhol'ot, N. M.; Gusyakov, V. P.

Farm. Zh. (Kiev) 1964, *19(1)* 52-5.

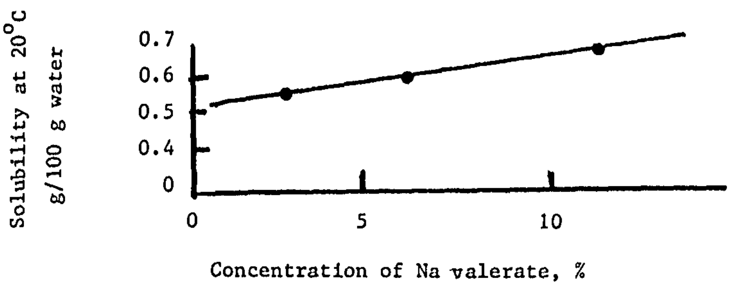
VARIABLES:

Concentration of Na valerate

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



The solubility in a 1 molal (mol kg^{-1} water, compiler) Na valerate solution at 20°C is 0.678 g/100 g water (3.94 x 10^{-2} mol kg^{-1} water, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The previously described method (1) was used whereby a small excess of sulfanilamide was equilibrated in a 50-ml test tube with 20 ml of a Na valerate soln for 8 h. Aliquots of the satd soln were removed through a filter and sulfanilamide was assayed bromatometrically (2).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was recrystd from water. Na valerate was prepd by neutralization of valeric acid with Na_2CO_3 or NaOH. The source and purity of the materials was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Gusyakov, V. P.; Likhol'ot, N. M. *Farm. Zh. (Kiev)* 1960, *15(3)*, 21.

2. *The Extra Pharmacopeia (Martindale)* 1955, *2(23)*, 353 and 389.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Hexanoic acid, sodium salt (Na caproate); $C_6H_{11}NaO_2$; [10051-44-2]

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

ORIGINAL MEASUREMENTS:

Likhol'ot, N. M.; Gusyakov, V. P.

Farm. Zh. (Kiev) 1964, *19(1)* 52-5.

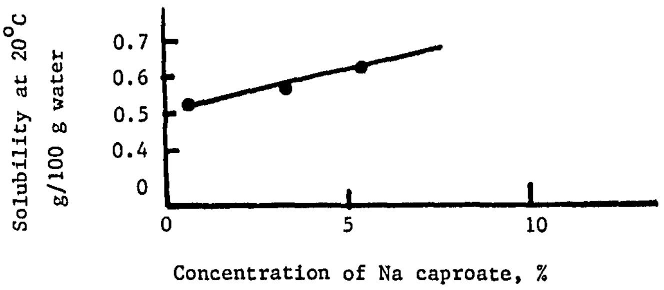
VARIABLES:

Concentration of Na caproate

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



The solubility in a 0.4 molal (mol kg^{-1} water, compiler) Na caproate solution at 20°C is 0.651 g/100 g water (3.78×10^{-2} mol/kg water, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The previously described method (1) was used whereby a small excess of sulfanilamide was equilibrated in a 50-ml test tube with 20 ml of a Na caproate soln for 8 h. Aliquots of the satd soln were removed through a filter and sulfanilamide was assayed bromatometrically (2).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was recrystd from water.

Na caproate was prepd by neutralization of caproic acid with Na_2CO_3 or NaOH.

The source and purity of the materials was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Gusyakov, V. P.; Likhol'ot, N. M. *Farm. Zh. (Kiev)* 1960, *15(3)*, 21.
2. *The Extra Pharmacopeia (Martindale)* 1955, *2(23)* 353 and 389.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Hexanoic acid, sodium salt, (Na caproate); $C_6H_{11}NaO_2$; [10051-44-2]

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

ORIGINAL MEASUREMENTS:

Likhol'ot, N. M.; Gusyakov, V. P.,
Farm. Zh. (Kiev) 1964, *19(1)*, 52-5.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 0.4 mol kg^{-1} (molal) sodium caproate solution at 20°C is 0.651 g/100 g water (3.78×10^{-2} mol kg^{-1} water, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A small excess of sulfanilamide was equilibrated for 8 hr in a 50-ml open test tube with 20 ml of Na caproate soln. Aliquots were removed through a filter, and sulfanilamide was assayed bromatometrically (1).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (source not specified) was recrystd from water (purity not specified). Na caproate was prepd by neutralization of caproic acid (source and purity not specified) with Na carbonate or hydroxide (source and purity not specified).

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. *The Extra Pharmacopeia (Martindale)* 1955, *2(23)*, 353 and 389.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Aminoacetic acid (glycine); $C_2H_5NO_2$; [56-40-6]

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

ORIGINAL MEASUREMENTS:

Kienle, R. H.; Sayward, J. M.

J. Am. Chem. Soc. 1942, *64*, 2464-8.

VARIABLES:

One temperature: 37.0°C; one pH: 11.8

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in an aqueous solution of glycine (pH 11.8, ionic strength calculated from dissociation constants 0.11[a]) at 37.0°C is 1.93 g/100 cm^3 solution (0.112 mol dm^{-3}, compiler).

[a] Not specified for which reactions were the dissociation constants calculated - compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of sulfanilamide was rotated with the glycine soln usually overnight. Equilibrium was approached from above. Sampling was accomplished by forcing the soln through a filter into a pycnometer. From the pycnometer the contents were flushed into a volumetric flask. Duplicate aliquots were acidified, iced below 15°C and titrated with a 0.04 mol dm^{-3} $NaNO_2$ soln to first blue on a starch - iodide paper.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (U.S.P.) from plant production was recrystd from alcohol and from hot water; mp 165.9°C. Titrn with nitrite indicated that the compd was 100.0 ±0.3% pure. Elemental analysis confirmed this value. Source and purity of the remaining materials was not specified.

ESTIMATED ERROR:

Soly: ±0.01 g/100 g soln or $\pm 0.012 \times 10^{-3}$ in mole fraction (authors).

Temp: ±0.02°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Pentanoic acid, sodium salt, (Na valerate); $C_5H_9NaO_2$; [6106-41-8]

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

ORIGINAL MEASUREMENTS:

Likhol'ot, N. M.; Gusyakov, V. P., *Farm. Zh. (Kiev)* 1964, *19(1)*, 52-5.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 1 mol kg^{-1} (molal) sodium valerate solution at 20°C is 0.678 g/100 g water (3.94×10^{-2} mol kg^{-1} water, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A small excess of sulfanilamide was equilibrated for 8 hr in a 50-ml test tube with 20 ml of Na valerate soln. Aliquots were taken through a filter and sulfanilamide was assayed bromatometrically (1).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (source not specified) was recrystd from water (purity not specified). Na valerate was prepd by neutralization of valeric acid (source and purity not specified) with Na carbonate or hydroxide (source and purity not specified).

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. *The Extra Pharmacopeia (Martindale)* 1955, *2(23)*, 353 and 389.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Propanoic acid, 2-hydroxy-, monosodium salt (Na hydroxypropionate) $C_3H_5NaO_3$; [72-17-3]

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

ORIGINAL MEASUREMENTS:

Likhol'ot, N. M.; Gusyakov, V. P.

Farm. Zh. (Kiev) 1964, *19(1)*, 52-5.

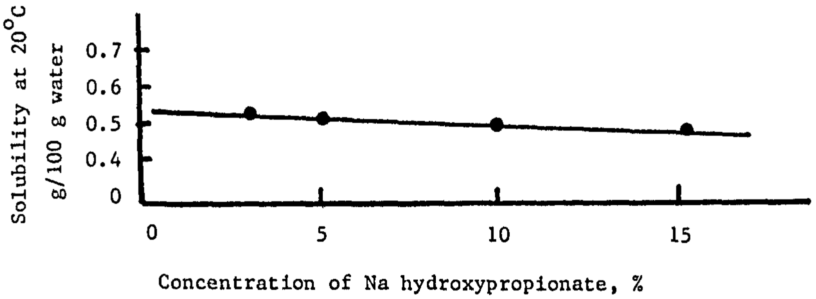
VARIABLES:

Concentration of Na hydroxypropionate

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



The solubility in a 1 molal (mol kg^{-1} water, compiler) Na hydroxypropionate solution at 20°C is 0.493 g/100 g water (2.86×10^{-2} mol kg^{-1} water, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The previously described method (1) was used whereby a small excess of sulfanilamide was equilibrated in a 50-ml test tube with 20 ml of a Na hydroxypropionate soln for 8 h. Aliquots of the satd soln were removed through a filter and sulfanilamide was assayed bromatometrically (2).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was recrystd from water. Its source was not specified. The soln of Na 2-hydroxypropionate was of the Czechoslovak origin (purity not specified).

Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Gusyakov, V. P.; Likhol'ot, N. M. *Farm. Zh. (Kiev)* 1960, *15(3)* 21.
2. *The Extra Pharmacopoia (Martindale)* 1955, *2(23)*, 353 and 389.

COMPONENTS:

(1) Benezenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Propanoic acid, 2-amino-, monosodium salt (Na aminopropionate); $C_3H_6NNaO_2$; [23388-69-4]

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

ORIGINAL MEASUREMENTS:

Likhol'ot, N. M.; Gusyakov, V. P.

Farm. Zh. (Kiev) 1964, *19(1)* 52-5.

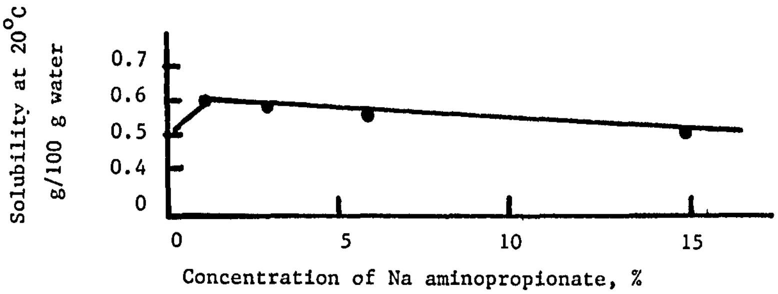
VARIABLES:

Concentration of Na aminopropionate

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



The solubility in a 1 molal (mol kg^{-1} water, compiler) Na aminopropionate solution at 20°C is 0.533 g/100 g water (3.10 x 10^{-2} mol kg^{-1} water, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The previously described method was used (1) whereby a small excess of sulfanilamide was equilibrated in a 50-ml test tube with 20 ml of a Na aminopropionate soln for 8 h. Aliquots of the satd soln were removed through a filter and sulfanilamide was assayed bromatometrically (2).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was recrystd from water. Na aminopropionate was prepd by neutralization of 2-aminopropionic acid with Na_2CO_3 or NaOH. The source and purity of the materials was not specified.

ESTIMATED ERROR:

Nothing specified.

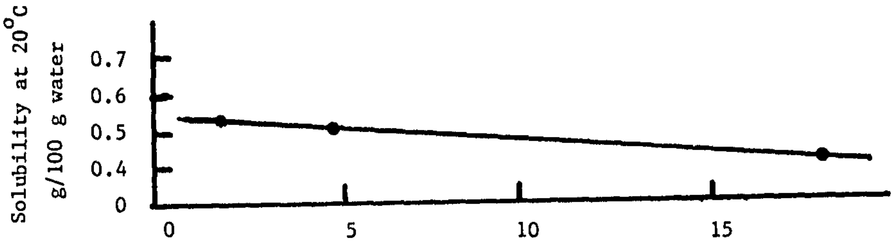
REFERENCES:

1. Gusyakov, V. P.; Likhol'ot, N. M. *Farm. Zh. (Kiev)* 1960, *15(3)* 21.

The Extra Pharmacopeia (Martindale) 1955, *2(23)*, 353 and 389.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino-(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Butanedioic acid, 2,3-dihydroxy-disodium salt (di-Na tartrate); $C_4H_4Na_2O_6$; [868-18-8] (3) Water; H_2O; [7732-18-5]	Likhol'ot, N. M.; Gusyakov, V. P. *Farm. Zh. (Kiev)* 1964, *19(1)*, 52-5.
VARIABLES:	PREPARED BY:
Concentration of di-Na tartrate	R. Piekos

EXPERIMENTAL VALUES:



Concentration of di-Na tartrate, %

The solubility in a 1 molal (mol kg^{-1} water, compiler) di-Na tartrate solution at 20°C is 0.426 g/100 g water (2.47×10^{-2} mol kg^{-1} water, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The previously described method (1) was used whereby a small excess of sulfanilimide was equilibrated in a 50-ml test tube with 20 ml of a di-Na tartrate soln for 8 h. Aliquots of the satd soln were removed through a filter and sulfanilamide was assayed bromatometrically (2).	Sulfanilamide and di-Na tartrate (source not specified) were purified by recrystn from water. Purity of the water was not specified.
	ESTIMATED ERROR:
	Nothing specified.
	REFERENCES:
	1. Gusyakov, V. P.; Likhol'ot, N. M. *Farm. Zh. (Kiev)* 1960, *15(3)*, 21. *The Extra Pharmacopeia (Martindale)* 1955, *2(23)*, 353 and 389.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) 1,2,3-Propanetricarboxylic acid, 2-hydroxy- (citric acid); $C_6H_8O_7$; [77-92-9]

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

ORIGINAL MEASUREMENTS:

Takubo, T.; Matsumaru, H.; Tsuchiya, S.; Hiura, M. *Chem. Pharm. Bull.* 1973, *21(7)*, 1440-5.

VARIABLES:

One temperature: 37°C; one pH: 2.1

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a citric acid solution (2.100 g citric acid per 100 ml water) of pH 2.1 at 37°C is 19.24 mg/ml solution[a] (0.1117 mol dm^{-3} solution, compiler).

[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 sulfanilamide. 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 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: not specified.
pH: not specified.
Temp: ±1°C (authors).

REFERENCES:

1. Takubo, T.; Tsuchiya, S.; Hiura, M. *Yakuzaigaku* 1971, *31*, 298.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) 1,2,3-Propanetricarboxylic acid, 2-hydroxy-, trisodium salt: (tri-Na citrate); $C_6H_5Na_3O_7$; [68-04-2]

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

ORIGINAL MEASUREMENTS:

Likhol'ot, N. M.; Gusyakov, V. P.

Farm. Zh. (Kiev) 1964, *19(1)*, 52-5.

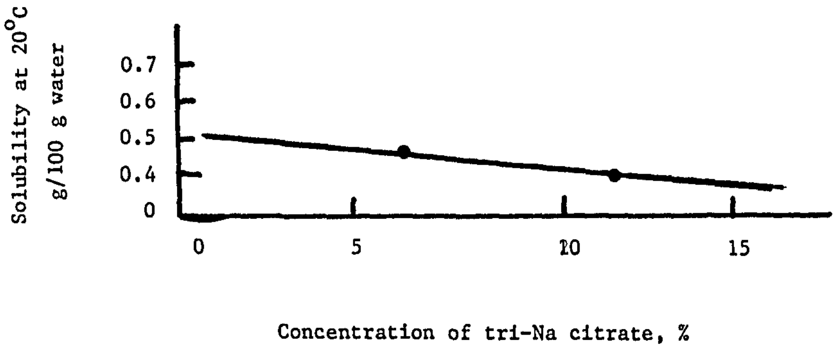
VARIABLES:

Concentration of tri-Na citrate

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



The solubility in a 1 molal (mol kg^{-1} water, compiler) tri-Na citrate solution at 20°C is 0.281 g/100 g water (1.63×10^{-2} mol kg^{-1} water, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The previously described method (1) was used whereby a small excess of sulfanilamide was equilibrated in a 50-ml test tube with 20 ml of a tri-Na citrate soln for 8 h. Aliquots of the satd soln were removed through a filter and assayed bromatrometrically (2).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide and tri-Na citrate (source not specified) were purified by crystn from water.

Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Gusyakov, V. P.; Likhol'ot, N. M. *Farm. Zh. (Kiev)* 1960. *15(3)*, 21.
2. *The Extra Pharmacopeia (Martindale)* 1955, *2(23)*, 353 and 389.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Benzoic acid, sodium salt; $C_7H_5NaO_2$; [532-32-1]

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

ORIGINAL MEASUREMENTS:

Gusyakov, V. P.; Sukmans'ka, I. V.

Farm. Zh. (Kiev) 1960, *15(1)*, 20-23.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 1 mol kg^{-1} water sodium benzoate solution at 20°C is 0.94 g/100 ml solution (5.5 x 10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

To 50-ml tightly stoppered test tubes contg 25 ml of a 1 mol kg^{-1} water Na benzoate soln, placed in a thermostat, accurately weighed 0.02-0.002-g portions of sulfanilamde were added under agitation until satn was attained.

SOURCE AND PURITY OF MATERIALS:

Both sulfanilamide and Na benzoate conformed to the requirements of the State Pharmacopeia VIII.

Distilled water was used.

ESTIMATED ERROR:

Temp: ±0.1°C (authors).

Soly: the accuracy of the detn of the concn was similar to that attained by volumetric method (authors).

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Benzoic acid, sodium salt; $C_7H_5NaO_2$; [532-32-1] (3) Water; H_2O; [7732-18-5]	Kňažko, L. *Farm. Obzor* 1966, *35*, 298-311.
VARIABLES: One temperature: 20°C	PREPARED BY: R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 0.5 mol dm^{-3} sodium benzoate solution at 20°C is 0.81 g/100 ml solution (4.7×10^{-2} mol dm^{-3}, compiler) or 0.79/100 g solution.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Sulfanilamide was added in small portions to a known volume of Na benzoate soln until reaching satn. The equilibration time was 3-4 h under stirring. The temp was held const by means of the Höppler ultrathermostat.	Sulfanilamide and Na benzoate conformed to the requirements of the Czechoslovak Pharmacopeia 2, Suppl. 1959. Purity of the water was not specified.
	ESTIMATED ERROR: Nothing specified.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Benzoic acid, 2-hydroxy-, monosodium salt (Na salicylate); $C_7H_5NaO_3$; [54-21-7] (3) Water; H_2O; [7732-18-5]	Kňažko, L. *Farm. Obzor* 1966, *35*, 298-311.
VARIABLES:	**PREPARED BY:**
Concentration of Na salicylate	R. Piekos

EXPERIMENTAL VALUES:

Concentration of Na salicylate (mol dm^{-3})	Solubility at 20°C		
	g/100 ml	g/100 g	10^2 mol dm^{-3} [a]
0.5	1.05	1.02	6.10
1	1.50	1.415	8.71
1.5	1.83	1.674	10.63
2	2.79	2.48	16.20
2.5	3.78	3.27	21.95
3	4.238	3.57	24.61

[a] of Na salicylate solution, calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added in small portions to a known volume of Na salicylate solns until reaching satn. The equilibration time was 3-4 h under stirring. The temp was held const by means of the Höppler ultrathermostat.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide and Na salicylate conformed to the requirements of the Czechoslovak Pharmacopeia 2, Suppl. 1959.

Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Benzoic acid, 2-hydroxy-, monosodium salt (Na salicylate); $C_7H_5NaO_3$; [54-21-7]

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

ORIGINAL MEASUREMENTS:

Gusyakov, V. P.; Sukmans'ka, I. V.

Farm. Zh. (Kiev) 1960, *15(1)*, 20-23.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 1 mol kg^{-1} water Na salicylate solution at 20°C is 1.29 g/100 ml solution (7.49×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

To 50-ml tightly stoppered test tubes contg 25 ml of a 1 mol kg^{-1} water Na salicylate soln, placed in a thermostat, accurately weighed 0.02-0.002-g portions of sulfanilamide were added under agitation until satn was attained.

SOURCE AND PURITY OF MATERIALS:

Both sulfanilamide and Na salicylate conformed to the requirements of the State Pharmacopeia VIII.

Distilled water was used.

ESTIMATED ERROR:

Temp: ±0.1°C (authors).

Soly: the accuracy of the detn of the concn was similar to that attained by volumetric method (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Benzoic acid, 2-hydroxy-, monosodium salt; $C_7H_5NaO_3$; [54-21-7]

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

ORIGINAL MEASUREMENTS:

Gusyakov, V. P.; Sukmans'ka, I. V.

Farm. Zhur. (Kiev) 1961, *16*, 25-8.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 1 molal monosodium 2-hydroxybenzoate solution at 20°C is 1.29 g/100 ml monosodium 2-hydroxybenzoate solution (7.49×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added in small portions (0.02 - 0.002 g) to a known volume of 1 molal monosodium 2-hydroxybenzoate soln, held on a water bath, until satn was attained. Moreover, the concn of sulfanilamide was assessed by means of a FEK-M photoelectrocolorimeter.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide and Na 2-hydroxybenzoate were pharmacopeial products.

Purity of the water was not specified.

ESTIMATED ERROR:

Soly: results of the colorimetric and gravimetric runs differed by 1-3% (authors).

Temp: ±0.1°C (authors).

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Benzoic acid, 4-hyroxy-, monosodium salt; $C_7H_5NaO_3$; [114-63-6] (3) Water; H_2O; [7732-18-5]	Gusyakov, V. P.; Sukmans'ka, I. V. *Farm. Zh. (Kiev)* <u>1961</u>, *16*, 25-8.
VARIABLES:	PREPARED BY:
One temperature: 20°C	R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 1 molal monosodium 4-hydroxybenzoate solution at 20°C is 1.04 g/100 ml monosodium 4-hydroxybenzoate solution (6.04×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added in small portions (0.02 - 0.002 g) to a known volume of 1 molal monosodium 4-hydroxybenzoate soln, held on a water bath, until satn was attained. Moreover, the concn of sulfanilamide was detd by means of a FEK-M photoelectrocolorimeter.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was a pharmacopeial product. Na 4-hydroxybenzoate was obtained by the authors by neutralization of 4-hydroxybenzoic acid which was 99.7% pure.

ESTIMATED ERROR:

Soly: results of colorimetric and gravimetric runs differed by 1-3% (authors).

Temp: ±0.1°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Benzoic acid, 4-amino-2-hydroxy-, monosodium salt; $C_7H_6NNaO_3$; [133-10-8]

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

ORIGINAL MEASUREMENTS:

Gusyakov, V. P.; Sukmans'ka, I. V.

Farm. Zh. (Kiev) 1960, *15(1)* 20-23.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 1 mol kg^{-1} water Na 4-amino-2-hydroxybenzoate solution at 20°C is 1.42 g/100 ml solution (8.25×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

To 50-ml tightly stoppered test tubes contg 25 ml of a 1 mol kg^{-1} water Na 4-amino-2-hydroxybenzoate soln, placed in a thermostat, accurately weighed 0.02-0.002-g quantities of sulfanilamide were added under agitation until satn was attained.

SOURCE AND PURITY OF MATERIALS:

Both sulfanilamide and Na 4-amino-2-hydroxybenzoate conformed to the requirements of the State Pharmacopeia VIII.

Distilled water was used.

ESTIMATED ERROR:

Temp. ±0.1°C (authors).

Soly: the accuracy of the detn of the concn was similar to that attained by volumetric method (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Benzenesulfonic acid, 4-methyl-, sodium salt (Na 4-toluenesulfonate) $C_7H_7NaO_3S$; [657-84-1]

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

ORIGINAL MEASUREMENTS:

Kňažko, L. *Farm. Obzor* 1966, *35*, 298-311.

VARIABLES:

Concentration of Na 4-toluenesulfonate

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of Na 4-toluenesulfonate (mol dm^{-3})	Solubility at 20°C		
	g/100 ml	g/100 g	10^2mol dm^{-3}[a]
0.5	0.95	0.92	5.52
1	1.25	1.165	7.26
1.5	1.56	1.405	9.06

[a] of Na 4-toluenesulfonate solution, calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added in small portions to a known volume of Na 4-toluenesulfonate solns until reaching satn. The equilibration time was 3-4 h under stirring. The temp was held const by means of the Höppler ultrathermostat.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide and Na 4-tolenesulfonate conformed to the requirements of the Czechoslovak Pharmacopeia 2, Suppl. 1959.

Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-
(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Benzoic acid, 3-hydroxy-, monosodium
salt; $C_7H_5NaO_3$; [7720-19-6]

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

ORIGINAL MEASUREMENTS:

Gusyakov, V. P.; Sukmans'ka, I. V.

Farm. Zh. (Kiev) 1961, *16*, 25-8.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 1 molal monosodium 3-hydroxybenzoate solution at 20°C is 1.09 g/100 ml monosodium 3-hydroxybenzoate solution (6.33×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added in small portions (0.02 - 0.002 g) to a known volume of 1 molal monosodium 3-hydroxybenzoate soln, held on a water bath, until satn was attained. Moreover, the concn of sulfanilamide was detd by means of a FEK-M photoelectrocolorimeter.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide was a pharmacopeial product. Na 3-hydroxybenzoate was obtained by neutralization of a comm 3-hydroxybenzoic acid with Na_2CO_3. The purity of the product was 97.7% (authors).

Purity of the water was not specified.

ESTIMATED ERROR:

Soly: results of the colorimetric and gravimetric runs differed by 1-3% (authors).

Temp: ±0.1°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-, (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Pectin; $(C_{13}H_{18}O_{12})_n$; [9000-69-5]

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

ORIGINAL MEASUREMENTS:

Becher, R.; Leya, S., *Experientia* 1946, *2*, 459-60.

VARIABLES:

One temperature: 18-19°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 2.5% pectin solution ([pectin] = 6.8×10^{-2} mol kg^{-1}, compiler), of pH about 2.6, at room temperature (18 - 19°C) is 866 mg% (5.00×10^{-2} 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 sulfanilamide assayed in the filtrate colorimetrically 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 cm^3 of 1 mol dm^{-3} NaOH was used. The source and purity of sulfanilamide and water was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Druey, J.; Oesterheld, G., *Helv. Chim. Acta* 1942, *25*, 753.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-, (sulfanilamide); $C_6H_6N_2O_2S$; [63-74-1]

(2) Pectinic acid, sodium salt; $(C_{13}H_{17}NaO_{12})_n$; [9049-37-0]

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

ORIGINAL MEASUREMENTS:

Becher, R., Leya, S., *Experientia* 1946, *2*, 459-60.

VARIABLES:

One temperature: 18-19°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfonamide in a 2.6% neutral sodium pectinate solution at room temperature (18-19°C) is 757 mg% (4.40×10^{-2} mol dm^{-3}, compiler).

[Na pectinate] = 6.7×10^{-2} mol kg^{-1}, compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The soln was allowed to stand for two days at room temp. The soln was then filtered, and sulfanilamide 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:

1. Druey, J.; Oesterheld, G., *Helv. Chim. Acta* 1942, *25*, 753.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Ethanol; C_2H_6O; [64-17-5]

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

ORIGINAL MEASUREMENTS:

Sapozhnikova, N. V.; Postovskii, I. Ya.

Zh. Prikl. Khim. 1944, *17*, 527-34.

VARIABLES:

Concentration of ethanol

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of ethanol Weight%	Solubility at 37°C	
	Weight%	mol kg^{-1} solvent^a
0	1.4	0.84
38.3	2.4	0.14
57.6	3.8	0.23
67.2	4.9	0.30
76.4	7.0	0.44
86	4.8	0.29
96	3.9	0.24

^{a}calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was dissolved in EtOH-water mixts to form satd solns which were occasionally agitated in glass vessels 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. sulfanilamide was used. Its mp conformed to that reported in the literature. The purity of ethanol and water was not specified.

ESTIMATED ERROR:

Soly: quite reliable results were obtained (authors).

Temp: ± 0.05°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-
(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Ethanol; C_2H_6O; [64-17-5]

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

ORIGINAL MEASUREMENTS:

Shkadova, A. I.

Farm. Zh. (Kiev) 1969, *24(3)*, 39-41.

VARIABLES:
Concentration of ethanol

PREPARED BY:
R. Piekos

EXPERIMENTAL VALUES:

Concentration of ethanol		Solubility at 20°C	
mole %	weight %	10^2 mol kg^{-1}	g/100 g[a]
0	0	3.06	0.527
10	22.14	7.54	1.298
20	39.01	17.15	2.953
30	52.31	21.67	3.732
40	63.04	25.25	4.348
50	71.90	26.89	4.630
60	79.33	25.09	4.320
70	85.65	23.01	3.962
80	91.10	20.77	3.577
90	95.83	14.50	2.496

[a] calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Satd solns of sulfanilamide were equilibrated with the solvent in a water thermostat at 20±0.1°C. Sulfanilamide was detd bromatometrically.

SOURCE AND PURITY OF MATERIALS:

Purity of sulfanilamide conformed to the requirements of the State Pharmacopoeia IX. The EtOH-water mixtures were prepd from abs EtOH (purity and source not specified) and distd water.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±0.1°C (author).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Ethanol; C_2H_6O; [64-17-5]

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

ORIGINAL MEASUREMENTS:

Burger, A.

Pharm. Ind. 1973, *35*, 626-33.

VARIABLES:

Concentration of ethanol

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of ethanol	Saturation solubility, C_s,[a] of crystalline form II of sulfanilamide at 20.0°C	
Volume %	mg/100 ml soln	mol dm^{-3} [b]
96	2680	0.1556
90	3279	0.1904
80	3735	0.2169
70	3931	0.2283
65	4024	0.2337
60	3843	0.2332
55	3409	0.1980
47.5	2615	0.1519
45	2475	0.1437
40	2285	0.1327

[a] C_s = [HA] + [A^-], where [HA] is the molar concentration of the dissolved, undissociated molecules of sulfanilamide and [A^-] is the concentration of the dissolved anion of the sulfanilamide.

[b] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was assayed spectrophotometrically at 258.5 nm using a Zeiss PMQ II spectrophotometer, in 1/15 M phosphate buffer of pH 7.00 ($E^{1\%}_{1\ cm}$ = 945).

SOURCE AND PURITY OF MATERIALS:

Form II of sulfanilamide was obtained by the common method (1). Its purity was not specified.

Purity of the water and EtOH was not specified.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±0.1°C (author)

REFERENCES:

1. Burger, A. *Sci. Pharm.* 1973, *41*, 290 and 303.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) 1,2-Ethanediol; $C_2H_6O_2$; [107-21-1]

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

ORIGINAL MEASUREMENTS:

Mingoia, Q.

Ann. Chim. Farm. (Suppl. to Farm. Ital.) Apr., 1939, 48-58.

VARIABLES:

Concentration of 1,2-ethanediol

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

% Water	% 1,2-Ethanediol	Solubility of sulfanilamide at 20°C	
		wt.%	10 mol kg^{-1} solution[a]
90	10	0.81	0.47
75	25	1.40	0.81
50	50	3.22	1.87
40	60	6.49	3.77
25	75	9.07	5.27

[a] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Five cm^3 of a sulfanilamide soln in aq 1,2-ethanediol was evapd to const wt on a boiling water bath. The residue was dissolved in distd water and its volume was adjusted to 50 cm^3 with the water. In 25 cm^3 of this soln sulfanilamide was assayed by known methods (probably colorimetric).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide: source and purity not specified.

1,2-Ethanediol was from Merck (purity not specified.

Distilled water was used.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) 1,2-Propanediol; $C_3H_8O_2$; [57-55-6]

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

ORIGINAL MEASUREMENTS:

Mingoia, Q.

Ann. Chim. Farm. (Suppl. to Farm. Ital.) Apr., 1939, 48-58.

VARIABLES:

Concentration of 1,2-propanddiol

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

% Water	% 1,2-Propanediol	Solubility of sulfanilamide at 20°C wt%	 10 mol kg^{-1} solution[a]
90	10	1.05	0.61
75	25	1.88	1.09
50	50	3.85	2.24
40	60	5.58	3.24
25	75	7.90	4.59

[a] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Five cm^3 of a sulfanilamide soln in aq 1,2-propanediol was evapd to const wt on a boiling water bath. The residue was dissolved in distd water and its volume was adjusted to 50 cm^3 with the water. In 25 cm^3 of this soln sulfanilamide was assayed by known methods (probably colorimetric).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide: source and purity not specified.

1,2-Propanediol was from Merck (purity not specified).

Distilled water was used.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Ethanol; C_2H_6O; [64-17-5] (3) 1,2,3-Propanetriol; $C_3H_8O_3$; [56-81-5[(4) Water; H_2O; [7732-18-5]	Dolique, R.; Foucault, J. *Trav. soc. pharm. Montpellier* 1952, *12*, 145-53.
VARIABLES:	PREPARED BY:
One temperature: 26-28°C	R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a mixture of 1,2,3-propanetriol and 95° ethanol (2:1 by wt) at 26-28°C is 6.23% (0.386 mol kg^{-1} solvent, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The sulfanilamide content was detd by diazotization of the amine group in a cold acidified 0.1N KNO_2 soln. An excess of KNO_2 was detected by using iodinated starch.	Nothing specified.
	ESTIMATED ERROR:
	Nothing specified.
	REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Ethanol, 2,2'-oxybis- (diethylene glycol); $C_4H_{10}O_3$; [111-46-6]

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

ORIGINAL MEASUREMENTS:

Mingoia, Q.

Ann. Chim. Farm. (Suppl. to Farm. Ital.) Apr., 1939, 48-58.

VARIABLES:

Concentration of diethylene glycol

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

% Water	% Diethylene glycol	Solubility of sulfanilamide at 20°C	
		wt%	10 mol kg^{-1} solution[a]
90	10	1.38	0.801
75	25	2.98	1.73
50	50	6.48	3.76
40	60	12.60	7.317
25	75	26.75	15.53

[a] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Five cm^3 of a sulfanilamide soln in aq diethylene glycol was evapd to const wt on a boiling water bath. The residue was dissolved in distd water and its volume was adjusted to 50 cm^3 with the water. In 25 cm^3 of this soln sulfanilamide was assayed by known methods (probably colorimetric).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide: source and purity not specified.

Diethylene glycol was from Carbide and Carbon Co. (purity was not specified).

Distilled water was used.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Urea; CH_4N_2O; [57-13-6]

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

ORIGINAL MEASUREMENTS:

Dolique, R.; Foucault, J.

Trav. soc. pharm. Montpellier 1952, *12* 145-53.

VARIABLES:

Concentration of urea

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of urea	Solubility of sulfanilamide at 26°C	
g/100 g water	g/100 g water	mol kg^{-1} water[a]
0	0.8	.05
20	1.9_3	.11
40	3.3_5	.20
80	5.9	.34
120	9.9	.58

[a] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The satd soln was agitated for 12 h at 26°C and filtered. The filtrate was evapd at 100-110°C and the residue was weighed. Measurements were carried out in test tubes containing 25 cm^3 of water.

SOURCE AND PURITY OF MATERIALS:

Nothing specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Urea; CH_4N_2O; [57-13-6]

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

ORIGINAL MEASUREMENTS:

Rohdewald, P.

Pharmazie 1975, *30(7)*, 460-3.

VARIABLES:

Concentration of urea

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of urea	Solubility at 20°C	
mol/l[a]	g/100 ml	10^2 mol dm^{-3}[b]
0.100	0.572	3.32
0.200	0.610	3.54
0.300	0.628	3.65
0.489	0.604	3.51
0.700	0.660	3.83
0.957	0.676	3.93
1.551	0.814	4.73

[a] Numerical values given by the author in personal communication.

[b] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The previously employed method (1) was used whereby the solns (50 cm^3) were placed in 100-cm^3 flasks with glass stoppers and rotated in a thermostated bath for 2 h. They were then filtered through a G3 glass filter and the undissolved sulfanilamide was dried at 90°C to const wt and weighed.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (source not specified) conformed to the requirements of the DAB 7-BRD. Urea (Schuchardt) was recrystd from aq MeOH. Purity of the water was not specified.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±0.05°C (author).

REFERENCES:

1. Schulte, K. E.; Rohdewald, R.; Weinhold, P. *Pharmazie* 1968, *23(5)*, 252.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) 3-Pyridinecarboxamide; $C_6H_6N_2O$; [98-92-0]

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

ORIGINAL MEASUREMENTS:

Rohdewald, P. *Pharm. Ztg.* 1971, *No. 38*, 1342-4.

VARIABLES:

Concentration of 3-pyridinecarboxamide

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

$$-k_s = \log \frac{L_{H_2O}}{L_s\ c_s} = 0.66\ \text{l/mol},$$

where L_{H_2O} (0.318_8 g/50 ml = $2.975_8 \times 10^{-2}$ mol dm^{-3}, compiler) and L_s are solubilities of sulfanilamide in water and in aqueous 3-pyridinecarboxamide solution, respectively, and c_s is the concentration of 3-pyridinecarboxamide. L_s values were supplied by the author in personal communication and are shown below.

Concentration of 3-pyridinecarboxamide	L_s at 20°C	
mol/l	g/100 ml	10^2 mol dm^{-3}[a]
0.030	0.542	3.15
0.082	0.612	3.55
0.164	0.686	3.98
0.328	0.854	4.96
0.500	1.090	6.33

[a] Calculated by compiler

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The solns were equilibrated by agitation for 2 h at 20°C and the sulfanilamide was assayed by differential gravimetric analysis. No details were given.

SOURCE AND PURITY OF MATERIALS:

The source and purity of sulfanilamide and water was not specified. Anal reagent grade 3-pyridinecarboxamide (source not specified) dried over mol sieve was used.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±0.05°C (author).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) 3-Pyridinecarboxamide, N,N-diethyl- (nicetamide); $C_{10}H_{14}N_2O$; [59-26-7]

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

ORIGINAL MEASUREMENTS:

Rohdewald, P. *Pharm. Ztg.* 1971, *No. 38* 1342-4.

VARIABLES:

Concentration of nicetamide

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

$$-k_x = \log \frac{L_{H_2O}}{L_s \ c_s} = 0.64 \text{ l/mol},$$

where L_{H_2O} (0.318$_8$ g/40 ml = 2.975$_8$ x 10^{-2} mol dm^{-3}, compiler) and L_s are solubilities of sulfanilamide in water and in aqueous nicetamide solutions, respectively, and c_s is the concentration of nicetamide.

L_s values were supplied by the author in personal communication and are shown below.

Concentration of nicetamide	L_s at 20°C	
mol/l	g/100 ml	10^2 mol dm^{-3}[a]
0.100	0.674	3.91
0.200	0.696	4.04
0.300	0.932	5.41
0.500	1.246	7.24

[a] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The solns were equilibrated by agitation for 2 h at 20°C and the sulfanilamide was assayed by differential gravimetric analysis. No details were given.

SOURCE AND PURITY OF MATERIALS:

The source and purity of sulfanilamide and water was not specified.
Anal reagent grade nicetamide (source not specified) dried over mol sieve was used.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±0.05°C (author).

REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Urea, methyl-; $C_2H_6N_2O$; [598-50-5] (3) Water; H_2O; [7732-18-5]	ORIGINAL MEASUREMENTS: Rohdewald, P. *Pharmazie* 1975, *30(7)* 460-3.
VARIABLES: Concentration of methylurea	PREPARED BY: R. Piekos

EXPERIMENTAL VALUES:

Concentration of methylurea mol/l[a]	Solubility at 20°C	
	g/100 ml	10^2 mol cm^{-3}[b]
0.050	0.576	3.34
0.100	0.586	3.40
0.200	0.602	3.50
0.400	0.614	3.57
0.600	0.676	3.93
0.700	0.732	4.25
0.800	0.740	4.30
1.000	0.790	4.59

[a] Numerical values given by the author in personal communication.

[b] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The previously employed method (1) was used whereby the solns (50 cm^3) were placed in 100-cm^3 flasks with glass stoppers and rotated in a thermostated bath for 2 h. They were then filtered through a G3 glass filter and the undissolved sulfanilamide was dried at 90°C to const wt and weighed.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (source not specified) conformed to the requirements of the DAB 7-BRD. Methylurea (Schuchardt) was recrystd from aq MeOH. Purity of the water was not specified.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±0.05°C (author).

REFERENCES:

1. Schulte, K. E.; Rohdewald, P.; Weinhold, P. *Pharmazie* 1968, *23(5)*, 252.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Urea, ethyl-; $C_3H_8N_2O$; [625-52-5]

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

ORIGINAL MEASUREMENTS:

Rohdewald, P.

Pharmazie 1975, *30(7)*, 460-3.

VARIABLES:

Concentration of ethylurea

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of ethylurea	Solubility at 20°C	
mol/l[a]	g/100 ml	10^2 mol dm^{-3}[b]
0.200	0.620	3.60
0.300	0.664	3.86
0.500	0.738	4.29
0.700	0.826	4.80

[a] Numerical values given by the author in personal communication.

[b] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The previously employed method (1) was used whereby the solns (50 cm^3) were placed in 100-cm^3 flasks with glass stoppers and rotated in a thermostated bath for 2 h. They were then filtered through a G3 glass filter and the undissolved sulfanilamide was dried at 90°C to const wt and weighed.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (source not specified) conformed to the requirements of the DAB 7-BRD. Ethylurea (Schuchardt) was recrystd from aq MeOH. Purity of the water was not specified.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±0.05°C (author).

REFERENCES:

1. Schulte, K. E.; Rohdewald, P.; Weinhold, P. *Pharmazie* 1968, *23(5)*, 252.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Urea, N,N'-dimethyl-; $C_3H_8N_2O$; [96-31-1]

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

ORIGINAL MEASUREMENTS:

Rohdewald, P.

Pharmazie 1975, *30(7)*, 460-3.

VARIABLES:

Concentration of N,N'-dimethylurea

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of N,N'-dimethylurea mol/l[a]	Solubility at 20°C g/100 ml	10^2 mol dm^{-3}[b]
0.200	0.624	3.62
0.300	0.660	3.83
0.400	0.678	3.94
0.500	0.726	4.22
0.600	0.750	4.35
0.700	0.792	4.60
0.800	0.842	4.89

[a] Numerical values given by the author in personal communication.

[b] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The previously employed method (1) was used whereby the solns (50 cm^3) were placed in 100-cm^3 flasks with glass stoppers and rotated in a thermostated bath for 2 h. They were then filtered through a G3 glass filter and the undissolved sulfanilamide was dried at 90°C to const wt and weighed.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (source not specified) conformed to the requirements of the DAB 7-BRD. N,N'-dimethylurea (Schuchardt) was recrystd from aq MeOH. Purity of the water was not specified.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±0.05°C (author).

REFERENCES:

1. Schulte, K. E.; Rohdewald, P.; Weinhold, P. *Pharmazie* 1968, *23(5)*, 252.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Urea, N,N-dimethyl-; $C_3H_8N_2O$; [598-94-7]

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

ORIGINAL MEASUREMENTS:

Rohdewald, P.

Pharmazie 1975, *30(7)* 460-3.

VARIABLES:

Concentration of N,N-dimethylurea

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of N,N-dimethylurea	Solubility at 20°C	
mol/l[a]	g/100 ml	10^2 mol dm^{-3}[b]
0.200	0.656	3.81
0.300	0.678	3.94
0.500	0.708	4.11
0.700	0.838	4.87
0.800	0.870	5.05
0.927	1.016	5.90

[a] Numerical values given by the author in personal communication.

[b] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The previously employed method (1) was used whereby the solns (50 cm^3) were placed in 100-cm^3 flasks with glass stoppers and rotated in a thermostated bath for 2 h. They were then filtered through a G3 glass filter and the undissolved sulfanilamide was dried at 90°C to const wt and weighed.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (source not specified) conformed to the requirements of DAB 7-BRD. N,N-dimethylurea (Schuchardt) was recrystd from aq MeOH. Purity of the water was not specified.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±0.05°C (author).

REFERENCES:

1. Schulte, K. E.; Rohdewald, P.; Weinhold, P. *Pharmazie* 1968, *23(5)*, 252.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Urea, tetramethyl-; $C_5H_{12}N_2O$; [632-22-4]

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

ORIGINAL MEASUREMENTS:

Rohdewald, P.

Pharmazie 1975, *30(7)*, 460-3.

VARIABLES:

Concentration of tetramethylurea

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of tetramethylurea	Solubility at 20°C	
mol/l[a]	g/100 ml	10^2 mol dm^{-3}[b]
0.200	0.850	4.936
0.400	1.004	5.830
0.600	1.196	6.945
0.800	1.412	8.200
1.000	1.668	9.686

[a] Numerical values given by the author in personal communication.

[b] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The previously employed method (1) was used wereby the solns (50 cm^3) were placed in 100-cm^3 flasks with glass stoppers and rotated in a thermostated bath for 2 h. They were then filtered through a G3 glass filter and the undissolved sulfanilamide was dried at 30°C to const wt and weighed.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (source not specified) conformed to the requirements of the DAB 7-BRD. Tetramethylurea (Schuchardt) was recrystd from aq MeOH. Purity of the water was not specified.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±0.05°C (author).

REFERENCES:

1. Schulte, K. E.; Rohdewald, P.; Weinhold, P. *Pharmazie* 1968, *23(5)*, 252.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Thiourea; CH_4N_2S; [62-56-6]

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

ORIGINAL MEASUREMENTS:

Rohdewald, P.

Pharmazie 1975, *30(7)*, 460-3.

VARIABLES:

Concentration of thiourea

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Concentration of thiourea	Solubility at 20°C	
mol/l[a]	g/100 ml	10^2 mol dm^{-3}[b]
0.300	0.646	3.75
0.400	0.664	3.86
0.600	0.706	4.10
0.800	0.784	4.55
1.000	0.880	5.11
1.200	0.952	5.53

[a] Numerical values given by the author in personal communication.

[b] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The previously employed method (1) was used whereby the solns (50 cm^3) were placed in 100-cm^3 flasks with glass stoppers and rotated in a thermostated bath for 2 h. They were then filtered through a G3 glass filter and the undissolved sulfanilamide was dried at 90°C to const wt and weighed.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (source not specified) conformed to the requirements of the DAB 7-BRD. Thiourea (Schuchardt) was recrystd from aq MeOH. Purity of the water was not specified.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±0.05°C (author).

REFERENCES:

1. Schulte, K. E.; Rohdewald, P.; Weinhold, P. *Pharmazie* 1968, *23(5)*, 252.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino-, (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Carbamic acid, ethyl ester (urethane); $C_3H_7NO_2$; [51-79-6] (3) Water; H_2O; [7732-18-5]	Weinstein, L.; McDonald, A., *Science* 1945, *101*, 44-5.
VARIABLES: One temperature: 20°C	**PREPARED BY:** R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 10% aqueous urethane solution at 20°C

1000 mg/100 cm^3 urethane solution (6×10^{-2} mol dm^{-3}, 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- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Ethanol; C_2H_6O; [64-17-5]

(3) 1,2,3-Propanetriol; $C_3H_8O_3$; [56-81-5]

(4) Urea; CH_4N_2O; [57-13-6]

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

ORIGINAL MEASUREMENTS:

Dolique, R.; Foucault, J.

Trav. soc. pharm. Montpellier 1952, *12*, 145-53.

VARIABLES:

One temperature: 26-28°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide 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 8.22% (0.52 mol kg^{-1} solvent, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The sulfanilamide content was detd by diazotization of the amine group in a cold acidified 0.1N KNO_2 soln. An excess of KNO_2 was detected by using iodinated starch.

SOURCE AND PURITY OF MATERIALS:

Nothing specified.

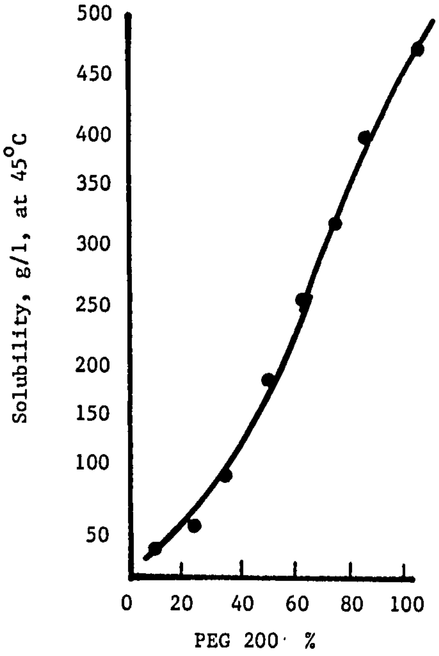
ESTIMATED ERROR:

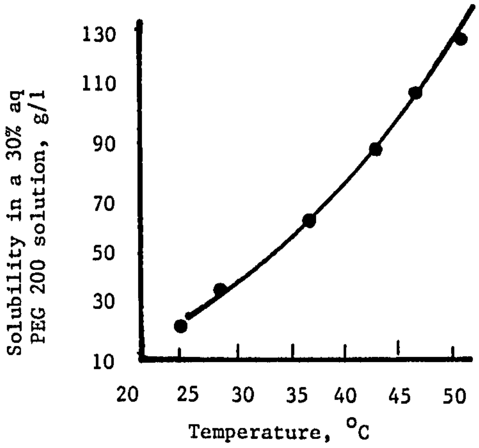
Nothing specified.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Poly (oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (PEG 200); $(C_2H_4O)_nH_2O$; [25322-68-3] 200 (3) Water; H_2O; [7732-18-5]	Kawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1965, *33*, 151-61.
VARIABLES:	**PREPARED BY:**
Concentration of PEG 200; temperature	R. Piekos

EXPERIMENTAL VALUES:





AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
An earlier developed method was employed (1) whereby a 100-ml conical flask contg a PEG 200 soln was placed in a drying cabinet at a given temp and an excess of sulfanilamide 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 at 260 mμ using a Unicam SP 500 spectrophotometer and 1-ml quartz cuvets. Results were taken from a calibration graph.	Sulfanilamide conformed with the requirements of BP 1953 or USP XIV. It was recrystd, dried, powdered, and again dried at 105°C to const wt. PEG 200 was a product of Farbwerke Hoechst. It was kept over concd H_2SO_4 in a desiccator. Purity of the water was not specified. **ESTIMATED ERROR:** Nothing specified. **REFERENCES:** 1. Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1965, *33*, 90.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (PEG 400); $(C_2H_4O)_nH_2O$; [25322-68-3] 400

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

ORIGINAL MEASUREMENTS:

Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1964, *32*, 271-9.

VARIABLES:

One temperature: 45°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 10% aqueous solution of PEG 400 at 45°C is 5.57 g/100 g PEG 400 solution (0.323 mol kg^{-1}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added in excess to an aq PEG 400 soln and the mixt was stirred for 30 min. The soln was then placed in a drying cabinet for 24 h and occasionally shaken. After filtration the sulfanilamide was assayed in the filtrate by the USP XVI method based on diazotization. The end point was detected by means of a starch paste as an indicator. Corrections were made for consumption of the 0.1 N $NaNO_2$ soln by PEG 400.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide conformed to the requirements of USP XVI.

Purity of the remaining materials was not specified.

ESTIMATED ERROR:

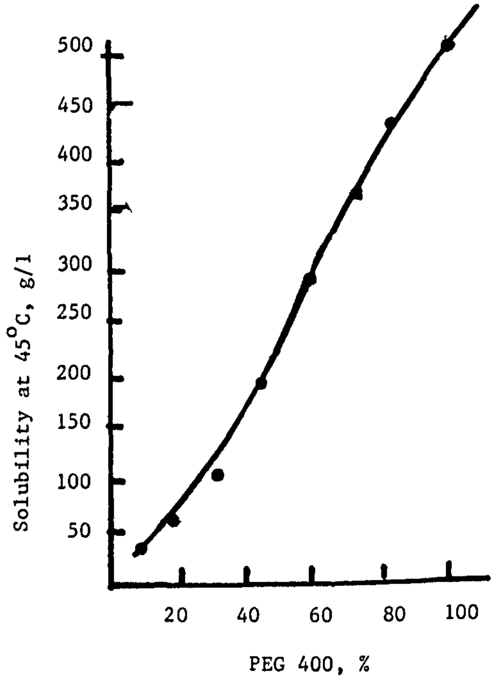
Soly: measurements were made in duplicate (authors).

Temp: ±1°C (authors).

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (PEG 400); $(C_2H_4O)_nH_2O$; [25322-68-3] 400 (3) Water; H_2O; [7732-18-5]	Kawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1965, *33*, 151-61.
VARIABLES:	**PREPARED BY:**
Concentration of PEG 400	R. Piekos

EXPERIMENTAL VALUES:



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
An earlier developed method was employed (1) whereby a 100-ml conical flask contg a PEG 400 soln was placed in a drying cabinet at 45°C and an excess of sulfanilamide 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 at 260 mμ using a Unicam SP 500 spectrophotometer and 1-ml quartz cuvets. Results were taken from a calibration graph.	Sulfanilamide conformed with the requirements of BP 1953 or USP XIV. It was recrystd, dried, powdered, and again dried at 105°C to const wt. PEG 400 was a product of Farbwerke Hoechst. It was kept over concd H_2SO_4 in a desiccator. Purity of the water was not specified. **ESTIMATED ERROR:** Nothing specified. **REFERENCES:** 1. Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1965, *33*, 90.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Poly(oxy-1,2-ethanediyl), α -hydro- ω -hydroxy- (PEG 400); $(C_2H_4O)_nH_2O$; [25322-68-3] 400

ORIGINAL MEASUREMENTS:

Gusyakov, V. P.; Likhol'ot, N. M.; Kutna, I. M. *Farm. Zh. (Kiev)* 1968, *23(6)*, 56-61.

VARIABLES:

One temperature: 21-25°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in α-hydro-ω -hydroxypoly(oxy-1,2-ethanediyl) 400 at room temperature (21-25°C) is 87.5% by weight (40.7 mol kg^{-1} PEG 400, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Small quantities (2-4 mg) of sulfanilamide were added to a known quantity of PEG 400 under stirring until satn was attained.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide: neither source nor purity were 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- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (PEG 400); $(C_2H_4O)_nH_2O$; [25322-68-3] 400

ORIGINAL MEASUREMENTS:

Khawan, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1964, *32*, 271-9.

VARIABLES:

One temperature: $45^{\circ}C$

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in PEG 400 at $45^{\circ}C$ is 15.25 g/100 g PEG 400 (0.8856 mol kg^{-1}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Small weighed samples of sulfanilamide were added to PEG 400 under stirring until dissoln occurred.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide conformed to the requirements of USP XVI.

Source and purity of PEG 400 was not specified.

ESTIMATED ERROR:

Soly: measurements were made in duplicate (authors).

Temp: ±$1^{\circ}C$ (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (PEG 600); $(C_2H_4O)_nH_2O$; [25322-68-3] 600

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

ORIGINAL MEASUREMENTS:

Kawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1965, *33*, 153-61.

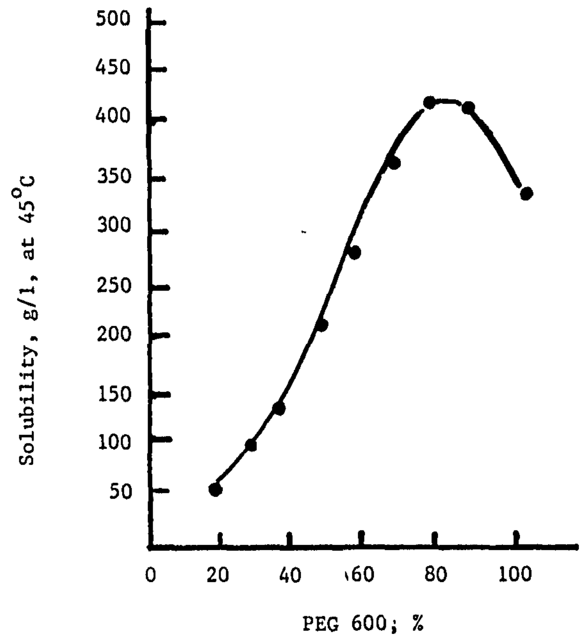
VARIABLES:

Concentration of PEG 600

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An earlier developed method was employed (1) whereby a 100-ml conical flask contg a PEG 600 soln was placed in a drying cabinet at a given temp and an excess of sulfanilamide 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 at 260 mμ using a Unicam SP 500 spectrophotometer and 1-ml quartz cuvets. Results were taken from a calibration graph.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide conformed to the requirements of BP 1953 or USP XIV. It was recrystd, dried, powdered, and again dried at 105°C to const wt. PEG 600 was a product of Farbwerke Hoechst. It was kept over concd H_2SO_4 in a desiccator.

Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1965, *33*, 90.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (PEG 600); $(C_2H_4O)_nH_2O$; [25322-68-3] 600

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

ORIGINAL MEASUREMENTS:

Gusyakov, V. P.; Likhol'ot, N. M.; Kutna, I. M. *Farm. Zh. (Kiev)* 1968, *23(6)*, 56-61.

VARIABLES:

One temperature: 21-25°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 5% (by weight) aqueous α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) 600 at room temperature (21-25°C) is 0.702 g/100 ml (4.08 x 10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A small excess of sulfanilamide was added to a 5% (by wt) aq PEG 600 soln, the mixt was sealed in an ampul and agitated for 24 h (1). The concn of sulfanilamide was detd colorimetrically (2).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide: neither source nor purity was specified. PEG 600 was of the Austrian or West German origin; purity not specified.

Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Gusyakov, V. P.; Likhol'ot, N. M.; Kutna, I. M. *Farm. Zh. (Kiev)* 1967, *22(3)*, 34.
2. Predchetenskii, B. E.; Borovskaya, V. M.; Morgolina, L. T. *Laboratornye metody issledovaniya, Medgiz, Moscow* 1950, *p.* 371

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (PEG 1500); $(C_2H_4O)_nH_2O$; [25322-68-3] 1500

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

ORIGINAL MEASUREMENTS:

Kawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1965, *33*, 151-61.

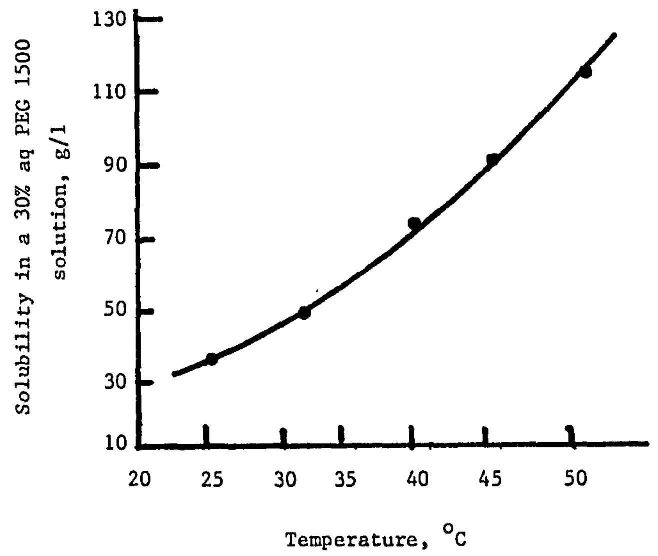
VARIABLES:

Temperature

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An earlier developed method was employed (1) whereby a 100-ml conical flask contg a PEG 1500 soln was placed in a drying cabinet at a given temp and an excess of sulfanilamide 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 at 260 mμ using a Unicam SP 500 spectrophotometer and 1-ml quartz cuvets. Results were taken from a calibration graph.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide conformed with the requirements of BP 1953 and USP XIV. It was recrystd, dried, powdered, and again dried at 105°C to const wt. PEG 1500 was a product of Farbwerke Hoechst. It was kept over concd H_2SO_4 in a desiccator.

Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1965, *33*, 90.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (PEG 4000); $(C_2H_4O)_nH_2O$; [25322-68-3] 4000

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

ORIGINAL MEASUREMENTS:

Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1964, *32*, 271-9.

VARIABLES:

One temperature: 45°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 10% aqueous solution of PEG 4000 at 45°C is 20.5 g/100 g PEG 4000 solution (1.19 mol kg^{-1}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added in excess to an aq PEG 4000 soln and the mixt was stirred for 30 min. The soln was then placed in a drying cabinet for 24 h and occasionally shaken. After filtration the sulfonamide was assayed in the filtrate by the USP XVI method based on diazotization. The end point was detected by means of a starch paste as an indicator. Corrections were made for consumption of the 0.1 N $NaNO_2$ soln by PEG 4000.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide conformed to the requirements of USP XVI.

Purity of the remaining materials was not specified.

ESTIMATED ERROR:

Soly: measurements were made in duplicate (authors).

Temp: ±1°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (PEG 4000); $(C_2H_4O)_nH_2O$; [25322-68-3] 4000

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

ORIGINAL MEASUREMENTS:

Gusyakov, V. P.; Likhol'ot, N. M.; Kutna, I. M. *Farm. Zh. (Kiev)* 1968, *23(6)*, 56-61.

VARIABLES:

One temperature: 21-25°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 5% (by weight) aqueous α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) 4000 at room temperature (21-25°C) is 0.766 g/100 ml (4.45×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A small excess of sulfanilamide was added to a 5% (by wt) aq PEG 4000 soln, the mixture was sealed in an ampul and agitated for 24 h (1). The concn of sulfanilamide was detd colorimetrically (2).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide: neither source nor purity was specified. PEG 4000 was of the Austrian or West German origin. Its purity was not specified.

Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Gusyakov, V. P.; Likhol'ot, N. M.; Kutna, I. M. *Farm. Zh. (Kiev)* 1967, *22(3)*, 34.
2. Predchetenskii, B. E.; Borovskaya, V. M.; Morgolina, L. T. *Laboratornye metody issledovaniya, Medgiz, Moscow* 1950, *p*. 371.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (PEG 6000); $(C_2H_4O)_nH_2O$; [25322-68-3] 6000

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

ORIGINAL MEASUREMENTS:

Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1964, *32*, 271-9.

VARIABLES:

One temperature: 45°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 10% aqueous PEG 6000 solution at 45°C is 21.8 g/100 g PEG 6000 solution (1.27 mol kg^{-1}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added in excess to an aq PEG 6000 soln and the mixt was stirred for 30 min. The soln was then placed in a drying cabinet for 24 h and occasionally shaken. After filtration the sulfonamide was assayed in the filtrate by the USP XVI method based on diazotization. The end point was detected by means of a starch paste as an indicator. Corrections were made for consumption of the 0.1 N $NaNO_2$ soln by PEG 6000.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide conformed to the requirements of USP XVI.

Purity of the remaining materials was not specified.

ESTIMATED ERROR:

Soly: measurements were made in duplicate (authors).

Temp: ±1°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (PEG 6000); $(C_2H_4O)_nH_2O$; [25322-68-3] 6000

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

ORIGINAL MEASUREMENTS:

Kawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1965, *33*, 153-61.

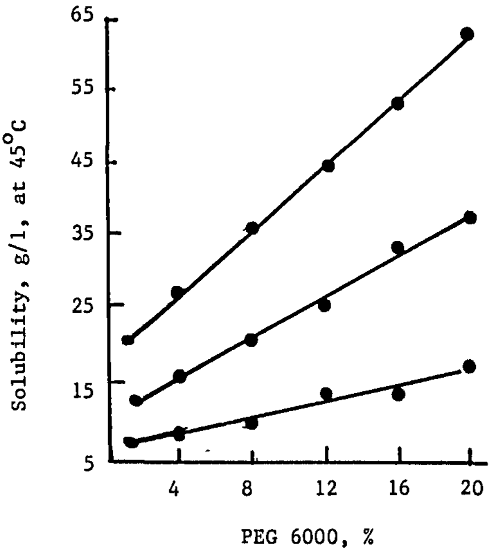
VARIABLES:

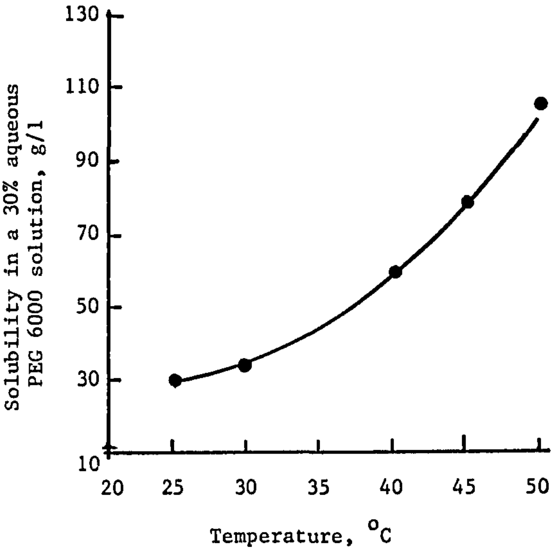
Concentration of PEG 6000; temperature

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:





AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An earlier developed method was employed (1) whereby a 100-ml conical flask contg a PEG 6000 soln was placed in a drying cabinet at a given temp and an excess of sulfanilamide 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 at 260 mμ using a Unicam SP 500 spectrophotometer and 1-ml quartz cuvets. Results were taken from a calibration graph.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide conformed with the requirements of BP 1953 or USP XIV. It was recrystd, dried, powdered, and again dried at 105°C to const wt. PEG 6000 was a product of Farbwerke Hoechst. It was kept over concd H_2SO^4 in a desiccator.

Purity of the water was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1965, *33*, 90.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Sorbitan monolaurate, polyoxyethylene derivatives (Tween 20); [9005-64-5]

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

ORIGINAL MEASUREMENTS:

Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1964, *32*, 271-9.

VARIABLES:

Temperature; concentration of Tween 20

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

$t/^{\circ}C$	Solubility of sulfanilamide in g/l (10^2 mol dm^{-3} [a]) at various Tween 20 concentrations					
	0.1%	0.5%	1%	2%	3%	4% (w/v)
16	4.43 (2.57)	4.71 (2.73)	4.91 (2.85)	5.62 (3.26)	6.10 (3.54)	6.75 (3.92)
24	6.98 (4.05)	7.6 (4.41)	8.20 (4.76)	9.18 (5.33)	9.81 (5.70)	10.33 (6.00)
34	12.85 (7.46)	13.47 (7.82)	13.9 (8.07)	15.54 (9.02)	16.14 (9.37)	16.88 (9.80)
44	21.22 (12.32)	21.98 (12.76)	21.22 (12.32)	23.81 (13.83)	25.05 (14.55)	27.72 (16.10)

[a] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added in excess to an aq Tween 20 soln and the mixture was stirred for 30 min. The soln was then placed in a drying cabinet for 24 h and occasionally shaken. After filtration the sulfanilamide was assayed in the filtrate by the USP XIV method based on diazotization . The end point was detected by means of a starch paste as an indicator. Corrections were made for consumption of the 0.1 N $NaNO_2$ soln by Tween 20.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide conformed to the requirements of the USP XVI.

Tween 20 was a commercially available reagent with a HLB value of 16.7, manufd by Atlas Goldschmidt A. G., Essen, West Germany.

Purity of the water was not specified.

ESTIMATED ERROR:

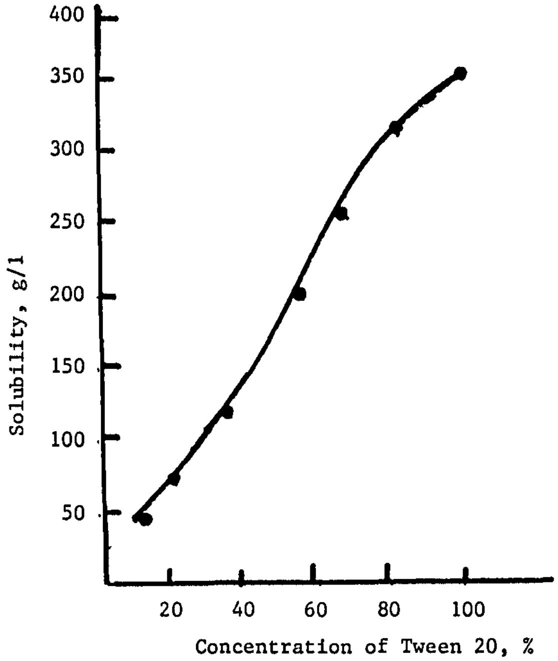
Soly: Measurements were made in duplicate (authors).

Tem;: $\pm 1^{\circ}C$ (authors).

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Sorbitan monolaurate, polyoxyethylene derivatives (Tween 20); [9005-64-5] (3) Water; H_2O; [7732-18-5]	Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1965, *33*, 90-101.
VARIABLES: Concentration of Tween 20	PREPARED BY: R. Piekos

EXPERIMENTAL VALUES:



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A 100-ml conical flask contg a Tween 20 soln was placed in a drying cabinet at 25°C and sulfanilamide was added in excess under stirring for 1 h. After 12 h the soln was filtered or decanted and sulfanilamide was assayed in the filtrate spectrophotometrically at 260 mμ using a Unicam SP 500 spectrophotometer and 1-ml quartz cuvets. Results were taken from a calibration graph.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (BP 1953 and USP XIV) was recrystd, dried, powdered, and dried again at 105°C to const wt. Tween 20 was an Atlas-Goldschmidt product with HLB = 16.7 and dielec const 9.89.

Distd water was used.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±1°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Sorbitan monolaurate, polyoxyethylene derivatives (Tween 20); [9005-64-5]

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

ORIGINAL MEASUREMENTS:

Gusyakov, V. P.; Likhol'ot, N. M.; Kutna, I. M. *Farm. Zh. (Kiev)* 1967, *22(3)*, 34-9.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

$$S/S_o = 1.23 \text{ at } 20^\circ\text{C},$$

where S is the solubility of sulfanilamide in a 2% by weight aqueous Tween 20 solution, and

S_o is the solubility of sulfanilamide in water (0.53 g/100 ml).

Hence S = 0.65 g/100 ml (3.8×10^{-2} mol dm^{-3}) - compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of sulfanilamide 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 sulfanilamide content was assayed in the filtrate photometrically.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide 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:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Sorbitan monopalmitate, polyoxyethylene derivatives (Tween 40); [9005-66-7]

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

ORIGINAL MEASUREMENTS:

Gusyakov, V. P.; Likhol'ot, N. M.; Kutna, I. M. *Farm. Zh. (Kiev)* 1967, *22(3)* 34-9.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

$$S/S_o = 1.1 \text{ at } 20^\circ C$$

where S is the solubility of sulfanilamide in a 2% by weight aqueous Tween 40 solution, and

S_o is the solubility of sulfanilamide in water (0.53 g/100 ml).

Hence S = 0.58 g/100 ml (3.4×10^{-2} mol dm^{-3}) - compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of sulfanilamide 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 sulfanilamide content was assayed in the filtrate photometrically.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide 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.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±0.1°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Sorbitan monostearate, polyoxyethylene derivatives (Tween 60); [9005-67-8]

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

ORIGINAL MEASUREMENTS:

Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1964, *32*, 271-9.

VARIABLES:

Temperature; concentration of Tween 60

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

$t/^\circ C$	Solubility of sulfanilamide in g/l (10^2 mol dm^{-3})[a] at various Tween 60 concentrations					
	0.1%	0.5%	1%	2%	3%	4% (w/v)
15	4.04 (2.35)	4.32 (2.51)	4.59 (2.66)	5.22 (3.03)	5.70 (3.31)	6.31 (3.66)
24	7.25 (4.21)	7.67 (4.45)	8.67 (5.03)	9.23 (5.36)	9.92 (5.76)	10.7 (6.21)
34	12.71 (7.38)	13.50 (7.84)	14.49 (8.41)	15.28 (8.87)	16.51 (9.59)	17.05 (9.90)
44	20.79 (12.07)	21.35 (12.40)	21.63 (12.56)	23.20 (13.47)	24.65 (14.31	26.26 (15.25)

[a] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added in excess to an aq Tween 60 soln and the mixture was stirred for 30 min. The soln was then placed in a drying cabinet for 24 h and occasionally shaken. After filtration the sulfanilamide was assayed in the filtrate by the USP XVI method based on diazotization. The end point was detected by means of a starch paste as an indicator. Corrections were made for consumption of the 0.1N $NaNO_2$ soln by Tween 60.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide conformed to the requirements of USP XVI.

Tween 60 was a commercially available reagent (source and purity not specified).

Purity of the water was not specified.

ESTIMATED ERROR:

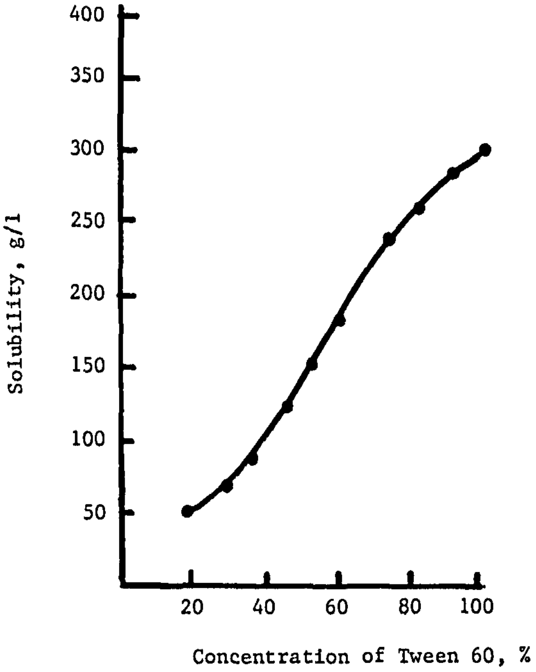
Soly: Measurements were made in duplicate (authors).

Temp: $\pm 1^\circ C$ (authors).

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino-(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Sorbitan monolaurate, polyoxyethylene derivatives (Tween 60); [9005-67-8] (3) Water; H_2O; [7732-18-5]	Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1965, *33*, 90-101.
VARIABLES:	**PREPARED BY:**
Concentration of Tween 60	R. Piekos

EXPERIMENTAL VALUES:



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
A 100-ml conical flask contg Tween 60 soln was placed in a drying cabinet at 25°C and sulfanilamide was added in excess under stirring for 1 h. After 12 h the soln was filtered or decanted and sulfanilamide was assayed in the filtrate spectrophotometrically at 260 mμ using a Unicam SP 500 spectrophotometer and 1-ml quartz cuvets. Results were taken from a calibration graph.	Sulfanilamide (BP 1953 and USP XIV) was recrystd, dried, powdered, and dried again at 105°C to const wt. Tween 20 was an Atlas-Goldschmidt product with HLB = 14.9 and dielec const 8.27. Distd water was used. **ESTIMATED ERROR:** Soly: not specified. Temp: ±1°C (authors). **REFERENCES:**

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Sorbitan monooleate, polyoxyethylene derivatives (Tween 80); [9005-65-6]

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

ORIGINAL MEASUREMENTS:

Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1964, *32*, 271-9.

VARIABLES:

Temperature; concentration of Tween 60

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

t/°C	Solubility of sulfanilamide in g/l (10^2 mol dm^{-3})^a at various Tween 80 concentrations					
	0.1%	0.5%	1%	2%	3%	4% (w/v)
13	3.62	3.86	4.06	4.68	5.30	5.88
	(2.10)	(2.24)	(2.36)	(2.72)	(3.08)	(3.41)
24	7.40	7.76	8.21	8.90	10.37	10.85
	(4.30)	(4.51)	(4.77)	(5.17)	(6.02)	(6.30)
34	12.47	13.47	13.50	13.7	15.2	17.69
	(7.24)	(7.82)	(7.84)	(7.96)	(8.83)	(10.27)
44	21.05	22.02	21.42	24.15	25.79	26.71
	(12.22)	(12.79)	(12.44)	(14.02)	(14.98)	(15.51)

[a] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was added in excess to an aq Tween 80 soln and the mixt was stirred for 30 min. The soln was then placed in a drying cabinet for 24 h and occasionally shaken. After filtration the sulfanilamide was assayed in the filtrate by the USP XVI method based on diazotization. The end point was detected by means of a starch paste as an indicator. Corrections were made for consumption of the 0.1N $NaNO_2$ soln by Tween 80.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide conformed to the requirements of USP XVI.

Tween 80 was a commercially available reagent (source and purity not specified).

Purity of the water was not specified.

ESTIMATED ERROR:

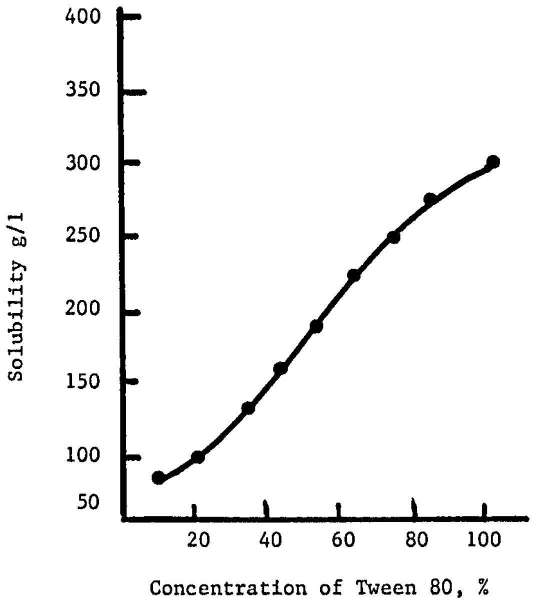
Soly: Measurements were made in duplicate (authors).

Temp: ±1°C (authors).

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Sorbitan monolaurate, polyoxyethylene derivatives (Tween 80); [9005-65-6] (3) Water; H_2O; [7732-18-5]	Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1965, *33*, 90-101.
VARIABLES: Concentration of Tween 80	PREPARED BY: R. Piekos

EXPERIMENTAL VALUES:



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
A 100-ml conical flask contg a Tween 80 soln was placed in a drying cabinet at 25°C and sulfanilamide was added in excess under stirring for 1 h. After 12 h the soln was filtered or decanted and sulfanilamide was assayed in the filtrate spectrophotometrically at 260 mμ using a Unicam SP 500 spectrophotometer and 1-ml quartz cuvets. Results were taken from a calibration graph.	Sulfanilamide (BP 1953 and USP XIV) was recrystd, dried, powdered, and dried again at 105°C to const wt. Tween 80 was an Atlas-Goldschmidt product with HLB = 15.0 and dielec const 8.75. Distd water was used.
	ESTIMATED ERROR: Soly: not specified. Temp: ±1°C (authors).
	REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Sorbitan monooleate, polyoxyethylene derivatives (Tween 80); [9005-65-6]

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

ORIGINAL MEASUREMENTS:

Gusyakov, V. P.; Likhol'ot, N. M.; Kutna, I. M. *Farm. Zh. (Kiev)* 1967, *22(3)*, 34-9.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

$$S/S_o = 1.19 \text{ at } 20^{\circ}C$$

where S is the solubility of sulfanilamide in a 2% by weight aqueous Tween 80 solution, and

S_o is the solubility of sulfanilamide in water (0.53 g/100 ml).

Hence S = 0.63 g/100 ml (3.7×10^{-2} mol dm^{-3}) - compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of sulfanilamide in a 2% by wt aq Tween 80 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 sulfanilamide content was assayed in the filtrate photometrically.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide 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:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) D-Glucose; $C_6H_{12}O_6$; [50-99-7] (3) Water; H_2O; [7732-18-5]	Becher, R.; Leya, S. *Experientia* 1946, *2*, 459-60.
VARIABLES:	PREPARED BY:
One temperature: 18-19°C	R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in a 10% D-glucose solution at room temperature (18-19°C) is 654 mg% (3.80×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

After standing for more than two days the soln of sulfanilamide 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:

1. Druey, J.; Oesterheld, G. *Helv. Chim. Acta* 1942, *25*, 753.

COMPONENTS: (1) Benzenesulfonamide, 4-amino-(sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) 2-Propanol; C_3H_8O; [67-63-0]	ORIGINAL MEASUREMENTS: Burlage, H. M. *J. Am. Pharm. Assoc., Sci. Ed.* 1948, *37* 345.
VARIABLES: One temperature: 25°C	PREPARED BY: R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in 2-propanol at 25°C is 0.7970 g/100 cm^3 solution (4.628×10^{-2} mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Satd solns of sulfanilamide 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 dessicator (1).

SOURCE AND PURITY OF MATERIALS:

The sulfonamide was manufd by Gane and Ingram and was of the U.S.P. purity. The source and purity of 2-propanol was not specified.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

1. Burlage, H. M. *J. Am. Pharm. Assoc., Sci. Ed.* 1947, *36(1)*, 16.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) 1-Butanol; $C_4H_{10}O$; [71-36-3]

ORIGINAL MEASUREMENTS:

Burger, A.

Sci. Pharm. 1973, *4*, 303-14.

VARIABLES:

Temperature

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

t/°C	Saturation solubility, C_s, of crystalline form II mg/100 ml soln	 10^2 mol dm^{-3} [a]
10.4	192	1.12
15.3	226	1.31
20.0	272	1.58
26.0	336	1.95
30.5	392	2.28
35.5	462	2.68
40.9	552	3.21
45.8	648	3.76

t/°C	Saturation solubility, C_s, of crystalline form II mg/100 ml soln	 10^2 mol dm^{-3} [a]
50.5	780	4.53
55.8	937	5.44
60.5	1096	6.36
66.0	1325	7.69
70.5	1596	9.27
75.5	1963	11.4
80.3	2261	13.1

[a] Calculated by compiler.

The following equation was derived based on the above data (C_s is in mg/100 ml solution): $C_s = 156.79 + 4643.79\,T^{-1} + 25.80 \ln T$,

where T is absolute temperature.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Satn soly was detd by the earlier developed method (1). Sulfanilamide was assayed photometrically at 263 nm ($E^{1\%}_{1\ \mathrm{cm}} = 1130$) on a Zeiss - PMQ II spectrophotometer.

SOURCE AND PURITY OF MATERIALS:

Cryst form II of sulfanilamide mp 156°C, was obtained by crystn from 96% EtOH (2).

Source and purity of the BuOH was not specified.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±0.1°C (author).

REFERENCES:

1. Kuhnert-Brandstätter, M.; Burger, A. *Pharm. Ind.* 1972, *34*, 187.
2. Burger, A. *Sci. Pharm.* 1973, *41*, 290.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) 1-Pentanol, (amyl alcohol); $C_5H_{12}O$; [71-41-0]

ORIGINAL MEASUREMENTS:

Lin, O. H.; Ph.D. Dissertation; The University of Iowa; Iowa City, IA; 1971; p. 76.

VARIABLES:

Four temperatures; four crystalline forms.

PREPARED BY:

J. K. Guillory

EXPERIMENTAL VALUES:

Solubilities of Sulfanilamide Polymorphic Forms:

t/°C	mol dm^{-3} α	β	γ	δ
30.0	1.36×10^{-2}	1.26×10^{-2}	1.35×10^{-2}	1.49×10^{-2}
37.0	1.74×10^{-2}	1.73×10^{-2}	1.72×10^{-2}	1.93×10^{-2}
45.0	2.32×10^{-2}	2.34×10^{-2}	2.33×10^{-2}	2.50×10^{-2}
50.0	2.90×10^{-2}	2.90×10^{-2}	2.86×10^{-2}	3.04×10^{-2}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of sulfanilamide was placed in 20-ml screw-capped vials with 20 ml of pentanol. Vials were rotated end-over-end in a bath whose temperature was controlled to ±0.1°C. Equilibrium was attained after 36 h or less. Supernatant was filtered through sintered glass, diluted 1:24 with 95% ethanol, and analyzed spectrophotometrically at 262 nm. Measurements were performed in duplicate. Residual crystals were analyzed by differential thermal analysis to detect change in crystal form. None was observed.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (Mallinckrodt) was recrystd from 95% ethanol, methanol, n-pentanol, or n-butanol. Crystal forms were identified using densities, refractive indexes, x-ray diffraction measurements (1) and by infrared spectrophotometry and differential thermal analysis (2).

1-Pentanol (Fisher Certified).

ESTIMATED ERROR:

Uncertainty of temperature (±0.1°C). Uncertainty of solubility measurements probably (1-2%) based on agreement of duplicate absorbance measurements.

REFERENCES:

1. Lin, H. O.; Baenziger, N. C.; and Guillory, J. K., *J. Pharm. Sci.* 1974, *63*, 145-6.
2. Lin, H. O.; Guillory, J. K., *J. Pharm. Sci.* 1970, *59*, 972-5.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) 1,2-Ethanediol; $C_2H_6O_2$; [107-21-1]

ORIGINAL MEASUREMENTS:

Mingoia, Q.

Ann. Chim. Farm. (Suppl. to Farm. Ital.) Apr., 1939, 48-58.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in 1,2-ethanediol at 20°C is 9.80 wt.% (0.569 mol kg^{-1} solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Five cm^3 of a sulfanilamide soln in 1,2-ethanediol were diluted with distilled water to 50 cm^3 and sulfanilamide was assayed in this solution by known methods (probably colorimetric).

SOURCE AND PURITY OF MATERIALS:

Source and purity of sulfanilamide were not specified.

1,2-Ethanediol was from Merck (purity not specified).

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) 1,2-Propanediol; $C_3H_8O_2$; [57-55-6]	Mingoia, Q. *Ann. Chim. Farm. (Suppl. to Farm. Ital.)* *Apr.,* 1939, 48-58.
VARIABLES: One temperature: 20°C	PREPARED BY: R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in 1,2-propanediol at 20°C is 11.46 wt% (0.6655 mol kg^{-1} solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Five cm^3 of a sulfanilamide soln in 1,2-propanediol were diluted with distilled water to 50 cm^3 and sulfanilamide was assayed in this solution by known methods (probably colorimetric).	Source and purity of sulfanilamide were not specified. 1,2-Propanediol was from Merck (purity not specified).
	ESTIMATED ERROR: Nothing specified.
	REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (PEG 400); $(C_2H_4O)_nH_2O$; [25322-68-3] 400

ORIGINAL MEASUREMENTS:

Wahlgren, S., *Svensk farm. tidskr.* 1962, *66*, 585-91.

VARIABLES:

Temperature

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

t/°C	Solubility in PEG 4000	
	weight%	mol kg^{-1} [a]
20	21	1.5
60	37	3.4

[a] Calculated by compiler.

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 sulfanilamide 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 cm^3 of 0.1 N NaOH soln was required to neutralize free acids in 5.0 g of PEG 400 dissolved in 20 cm^3 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:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (poly(ethylene glycol) (PEG 3000); $(C_2H_4O)_nH_2O$; [25322-68-3] 3000

ORIGINAL MEASUREMENTS:

Wahlgren, S., *Svensk farm. tidskr.* 1962, *66*, 585-91.

VARIABLES:

One temperature: 60°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in poly(ethylene glycol) 3000 at 60°C is 17% by weight (0.99 mol kg^{-1}, compiler).

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 sulfanilamide 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 0.1 N 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:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Ethanol, 2,2'-oxybis- (diethylene glycol; $C_4H_{10}O_3$; [111-46-6]

ORIGINAL MEASUREMENTS:

Mingoia, Q.

Ann. Chim. Farm. (Suppl. to Farm. Ital.)

Apr., 1939, 48-58.

VARIABLES:

One temperature: 20°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in diethylene glycol at 20°C is 39.66 wt.% (2.303 mol kg^{-1} solution, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Five cm^3 of a sulfanilamide soln in diethylene glycol were diluted with distilled water to 50 cm^3 and sulfanilamide was assayed in this solution by known methods (probably colorimetric).

SOURCE AND PURITY OF MATERIALS:

Source and purity of sulfanilamide were not specified.

Diethylene glycol was from Carbide and Carbon Co. (purity not specified).

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Benzene; C_6H_6; [71-43-2]

ORIGINAL MEASUREMENTS:

Lin, H. O.; Ph.D. Dissertation; The University of Iowa; Iowa City, IA; 1971; p. 77.

VARIABLES:

Four temperatures; four crystalline forms

PREPARED BY:

J. K. Guillory

EXPERIMENTAL VALUES:

t/°C	Solubilities of Sulfanilamide Polymorphic Forms: mole dm^{-3}			
	α	β	γ	δ
25.0	2.70×10^{-4}	2.60×10^{-4}	2.54×10^{-4}	2.68×10^{-4}
30.0	3.12×10^{-4}	2.90×10^{-4}	2.88×10^{-4}	2.93×10^{-4}
33.0	3.54×10^{-4}	3.52×10^{-4}	3.43×10^{-4}	3.65×10^{-4}
37.0	3.97×10^{-4}	3.96×10^{-4}	3.97×10^{-4}	4.25×10^{-4}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of crystalline sulfanilamide was placed in 20-ml screw-capped vials with 20 ml of benzene. Vials were rotated end-over-end in a bath whose temperature was controlled to ±0.1°C. Equilibrium was attained after 36 h or less. Supernatant was filtered through sintered glass, diluted 1:9 with 95% ethanol, and analyzed spectrophotometrically at 272 nm. Measurements were performed in duplicate, triplicate or quadruplicate. Residual crystals were analyzed by differential thermal analysis to detect change in crystal form. None was observed.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (Mallinckrodt) was recrystd from 95% ethanol, methanol, n-pentanol, or n-butanol. Crystal forms were identified using densities, refractive indexes, x-ray diffraction measurements (1) and by infrared spectrophotometry and differential thermal analysis (2).

Benzene (Mallinckrodt).

ESTIMATED ERROR:

Uncertainty of temperature (±0.1°C).
Uncertainty of solubility measurements probably (±1-2%) based on agreement of replicate absorbance measurements.

REFERENCES:

1. Lin, H. O.; Baenziger, N. C.; and Guillory, J. K., *J. Pharm. Sci.* 1974, *63*, 145-6.
2. Lin, H. O.; Guillory, J. K., *J. Pharm. Sci.* 1970, *59*, 972-5.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

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

ORIGINAL MEASUREMENTS:

Yamazaki, M.; Aoki, M.; Kamada, A.; Yata, N. Yakuzaigaku 1967, *27(1)*, 37-40.

VARIABLES:

One temperature: 30°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in chloroform at 30°C is 1.32 mmol/L (0.227 g dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide (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 sulfanilamide 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:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Methane, trichloro-; $CHCl_3$; [67-66-3]	Kitao, K.; Kubo, K.; Morishita, T.; Yata, N.; Kamada, A. *Chem. Pharm. Bull.* 1973, *21*, 2417-26.
VARIABLES:	**PREPARED BY:**
One temperature: 37°C	R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in $CHCl_3$ at 37°C is 1.40 mmol dm^{-3} solution.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

One ml of the $CHCl_3$ soln of sulfanilamide 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 sulfanilamide was detd by diazotization.

SOURCE AND PURITY OF MATERIALS:

Comm available sulfanilamide was used as supplied.

Purity of the $CHCl_3$ was not specified.

ESTIMATED ERROR:

Soly: not specified.

Temp: ±1°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) 2-Propanone (acetone); C_3H_6O; [67-64-1]

ORIGINAL MEASUREMENTS:

Gutierrez, F. H.

Anales fis. quim. (Madrid) 1945, *41*, 537-60.

VARIABLES:

Temperature

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

$t/^{\circ}C$	G^a	E^b	X_g/l^c	mol/l acetone	mmol/mol acetone	$1:X_g{}^d$	$1 + X_{cc}{}^e$
0	25.620	20.395	208.701	1.212	86	3.90	4.79
5	27.299	21.445	220.997	1.283	92	3.66	4.53
10	27.597	21.628	222.104	1.289	93	3.62	4.52
15	28.318	22.069	225.723	1.311	95	3.53	4.43
20	29.965	23.056	237.083	1.377	101	3.34	4.22
25	31.132	23.741	244.445	1.419	105	3.21	4.09
30	32.516	24.537	253.397	1.471	110	3.08	3.95
35	34.509	25.656	266.858	1.549	116	2.90	3.75
40	37.067	27.043	284.452	1.652	125	2.70	3.52
45	39.914	28.578	303.905	1.765	135	2.51	3.29
50	45.110	31.087	340.806	1.979	152	2.22	2.93

[a] $G = \frac{p\ 100}{P - p}$, where p and P are the weights of solute and solution, resp.

[b] $E = \frac{G\ 100}{G + 100}$.

[c] g/l acetone.

[d] g of acetone required to dissolve 1 g of solute.

[e] 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 Me_2CO-satd N, filtration, and distn off the solvent without the contact with air. Two exchangeable dissoln vessels of 15 and 8 cm^3 working capacity were used depending on the soly of the 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 Me_2CO.

SOURCE AND PURITY OF MATERIALS:

The source of the materials was not specified. Pure, anhyd Me_2CO was used. The absence of impurities and water was confirmed by procedures of the German Pharmacopeia VI and Spanish Pharmacopoeia VIII.

The purity of sulfanilamide was not specified.

ESTIMATED ERROR:

Soly: measurements were repeated until obtaining 2 values not differing in the second decimal (author).

Temp: $\pm 0.1^{\circ}C$ (author).

REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Methylcyclohexanone; $C_7H_{12}O$; [1331-22-2]	ORIGINAL MEASUREMENTS: Barber, H. J.; Wilkinson, J. H. *Quart. J. Pharm. Pharmacol.* 1946, *19*, 248-55.
VARIABLES: One temperature: 25°C	PREPARED BY: R. Piekos

EXPERIMENTAL VALUES:

Approximate solubility of sulfanilamide in methylcyclohexanone at 25°C is 4.7 per cent w/v (0.27 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:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1] (2) Methylcyclohexanone; $C_7H_{12}O$; [1331-22-2]	Barber, H. J.; Wilkinson, J. H. *Pharm. J.* 1946, 105-6.
VARIABLES:	**PREPARED BY:**
One temperature: 25°C	R. Piekos

EXPERIMENTAL VALUES:

Approximate solubility of sulfanilamide in methylcyclohexanone at 25°C is 4.7 per cent w/v (0.27 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- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Sorbitan monolaurate (Span 20); $C_{18}H_{34}O_6$; [1338-39-2]

ORIGINAL MEASUREMENTS:

Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1964, *32*, 271-9.

VARIABLES:

One temperature: 45°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in Span 20 at 45°C is 0 g/100 g Span 20.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Small weighed samples of sulfanilamide were added to Span 20 under stirring until dissoln occurred.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide conformed to the requirements of USP XVI.

Source and purity of Span 20 was not specified.

ESTIMATED ERROR:

Soly: measurements were made in duplicate (authors).

Temp: ±1°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino- (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Sorbitan monooleate, polyoxyethylene derivatives (Tween 80); [9005-65-6]

ORIGINAL MEASUREMENTS:

Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H. v. *Sci. Pharm.* 1964, *32,* 271-9.

VARIABLES:

One temperature: 45°C

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of sulfanilamide in Tween 80 at 45°C is 30 g/100 g Tween 80 (1.7 mol kg^{-1}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Small weighed samples of sulfanilamide were added to Tween 80 under stirring until dissoln occurred.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide conformed to the requirements of USP XVI.

Tween 80 was a commercially available reagent with a HLB value of 15.

ESTIMATED ERROR:

Soly: measurements were made in duplicate (authors).

Temp: ±1°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-, (sulfanilamide); $C_6H_8N_2O_2S$; [63-74-1]

(2) Butane, 1,1' - oxybis-, (butyl ether); $C_8H_{18}O$; [142-96-1]

ORIGINAL MEASUREMENTS:

Lin, H. O.; Ph.D. Dissertation; The University of Iowa; Iowa City, IA; 1971; p. 76.

VARIABLES:

Four temperatures; four crystalline forms

PREPARED BY:

J. K. Guillory

EXPERIMENTAL VALUES:

t/°C	Solubilities of Sulfanilamide Polymorphic Forms: mol dm^{-3}			
	α	β	γ	δ
30.0	2.55×10^{-4}	2.60×10^{-4}	2.92×10^{-4}	2.83×10^{-4}
33.0	2.76×10^{-4}	2.80×10^{-4}	3.05×10^{-4}	3.06×10^{-4}
37.0	2.95×10^{-4}	2.98×10^{-4}	3.26×10^{-4}	3.37×10^{-4}
45.0	3.56×10^{-4}	3.60×10^{-4}	3.84×10^{-4}	3.88×10^{-4}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of crystalline sulfanilamide was placed in 20-ml screw-capped vials with 20 ml of butyl ether. Vials were rotated end-over-end in a bath whose temperature was controlled to ±0.1°C. Equilibrium was attained after 36 h or less. Supernatant was filtered through sintered glass, diluted 2:23 with 95% ethanol, and analyzed spectrophotometrically at 262 nm. Measurements were performed in triplicate. Residual crystals were analyzed by differential thermal analysis to detect change in crystal form. None was observed.

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide (Mallinckrodt) was recrystd from 95% ethanol, methanol, n-pentanol, or n-butanol. Crystal forms were identified using densities, refractive indexes, x-ray diffraction measurements (1) and by infrared spectrophotometry and differential thermal analysis (2).

Butyl ether (Matheson Coleman & Bell).

ESTIMATED ERROR:

Uncertainty of temperature (±0.1°C).
Uncertainty of solubility measurements probably (±1-2%) based on agreement of triplicate absorbance measurements.

REFERENCES:

1. Lin, H. O.; Baenziger, N. C.; and Guillory, J. K., *J. Pharm. Sci.* 1974, *63*, 145-6.
2. Lin, H. O.; Guillory, J. K., *J. Pharm. Sci.* 1970, *59*, 972-5.

COMPONENTS:

(1) Benzenesulfonamide, 4-amino-, monohydrate, (sulfanilamide monohydrate); $C_6H_8N_2O_2S \cdot H_2O$; [20203-81-0]

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

ORIGINAL MEASUREMENTS:

Burger, A.

Pharm. Ind. 1973, *35*, 626-33.

VARIABLES:

Temperature

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

$t/^{\circ}C$	Saturation solubility, C_s[a]	
	mg/100 ml solution	10^2 mol dm^{-3}[b]
4.4	182	0.957
10.2	251	1.32
15.0	337	1.77
20.0	465	2.44
25.0	600	3.15
30.0	820	4.31
35.0	1100	5.78
37.0	1270	6.68

[a] C_s = [HA] + [A^-], where [HA] is the molar concentration of the dissolved, undissociated molecules of sulfanilamide and [A^-] is the concentration of the dissolved anion of sulfanilamide.

[b] Calculated by compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sulfanilamide was assayed spectrophotometrically at 258.5 nm using a Zeiss PMQ II spectrophotometer and a 1/15 M phosphate buffer of pH 7.00 ($E^{1\%}_{1\ cm}$ = 945).

SOURCE AND PURITY OF MATERIALS:

Sulfanilamide monohydrate was obtained by vacuum evapn of a sulfanilamide (source and purity not specified) soln at 40°C and cooling the crystals to 20°C at normal pressure.

Purity of the water was not specified.

ESTIMATED ERROR:

Soly: not specified.

Temp: $\pm 0.1^{\circ}C$ (author).

REFERENCES: