

COMPONENTS:	EVALUATOR:
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole) $C_9H_9N_3O_2S_2$; [72-14-0]	Anthony N. Paruta Department of Pharmaceutics University of Rhode Island Kingston, Rhode Island, USA and
(2) Water	Ryszard Piekos
(3) Aqueous phosphate buffer	Faculty of Pharmacy, University of Gdansk Gdansk, Poland 1986

CRITICAL EVALUATION:

The solubility data available for sulfathiazole cover a 44 year span and are summarized in Table I.

Table I: Solubility of Sulfathiazole in water at various temperature

Reference	10^3 mol dm^{-3} (*indicates mol kg^{-1})			
	293K	298K	303K	310K
1	-	2.35(299K)	-	-
2	-	-	-	3.7
3	-	2.35(298.9K)	-	3.56
4	-	-	-	23.5
5	-	1.96*(299K)	-	3.76*
6	1.45*	-	-	3.45*
7	2.7*	-	-	-
8	2.0(291-292K)	-	-	-
9	-	-	-	3.72
10	-	-	-	1.9
11	-	-	2.43	-
12	-	-	2.27	-
13	1.76*(Form II)	-	-	-
14	-	-	2.350(α)	3.055(α , 308K)
15	1.68	-	-	-
16	-	1.837(α)	-	3.122(α , 308K)
17	1.7	-	-	-
18	1.394(pm)	1.837(pm)	2.400(pm)	3.122(pm, 308K)
19	-	-	2.34	-
20	1.5*	-	-	-
21	-	-	2.5	-
22	-	1.821(α)	2.326(α)	3.094(α , 308K)
22	-	3.29 (β)	4.308(β)	5.354(β , 308K)
23	-	-	-	2.56 (pH = 4)
24	-	-	-	3.13
25	-	-	-	3.44
26	-	3.05	-	-
27	-	-	-	3.44
28	1.3	-	-	-

pm = polymorphs

The solubility of the most stable form (mp 473K) at various temperatures is dealt with initially followed by a discussion of the polymorphic forms and their effect on solubility. In the column of values at 293K, those of Weinstein and McDonald (7) and Becher and Leya (8) should be disregarded as being substantially higher than the rest and not considered further. The solubility reported by Kuhnert-Brandstätter and Martinek (13) of a form II (probably the same as "normal" sulfathiazole) is quite similar to those given for "normal" sulfathiazole. Since there is some question as to the identity of this form (13), the value was not considered further. The values of Ito and Sekiguchi (18) at the four temperatures, are not considered for the "normal" sulfathiazole, but for the alpha (α) form solubility discussion. The remaining values (6,15,17,20,28) were considered as potentially acceptable in deriving a pool of "good" values.

Sapozhnikova and Postovskii (6) used an equilibrium time of one hour was not considered further despite their reasonable values. The values of Miseta, Kedvessy and Selmeczi (28), while no doubt at equilibrium (2 days), gave only an approximate solubility of one part in 3000, thus not considered as accurate as the other values given. The remaining values (15,17,20,28) are the pool of acceptable values. The recommended value for sulfathiazole at 293K is the average of the four values (15,17,20,28) and is given as $1.6 \times 10^{-3} \text{ mol dm}^{-3}$. Values given at 298K by two workers (22,26) were quite high. The solubility of the beta (β) form (22) is also quite high both at 303K and 308K. The values reported at 298K-299K (1,3,5) are not sufficiently similar to allow a recommended value since the value given in (3) is a repeat of the value given in (1).

Sulfathiazole has two crystalline forms, one melts at 493K, the other at 445K, which are expected to exhibit different solubilities (14,16,18,22). Sanchez (14) and Kanke

and Sekiguchi (22) specifically annotate the lower melting-point alpha form of this compound, and the values at 298K, 303K and 308K are very close to one another. Although Sekiguchi and Ito (16,18) do not specifically identify the solubility values for the alpha form, the similarity of the results leads to the probable conclusion that they refer to the lower melting point form. Thus, recommended values for the alpha form are 1.832×10^{-3} mol dm⁻³ at 298K, 2.338×10^{-3} mol dm⁻³ at 303K, and 3.098×10^{-3} mol dm⁻³ at 308K. At 303K, the values (11,12,19,21) were close to lead to an average value of 2.4×10^{-3} mol dm⁻³. This value should be compared with the recommended value of 2.338×10^{-3} mol dm⁻³ for the alpha form are quite similar. While there may be some doubt as to the crystalline form in the work of Bhattacharyya and Basu (11), there is no doubt that the Higuchi and Lach (12) used the higher melting point beta (β) form, to which recrystallization usually leads. Yamazaki et al. (19) did not specify the form of the sulfathiazole. Since there is some doubt about the forms used in these reports, the average value given above can only be considered tentative.

At body temperature, 310K, there were eight values reported (2,3,5,6,9,10,24,25,27). That given by Tréfouël (4) is obviously too high, and that of Kitao et al. (23) refers to pH = 4. Neish's (10) value is too low, as is that of Dubois and Tawashi (24) and were not considered further. The remaining values (2,3,5,6,9,25,27) were averaged, and a recommended value of 3.6×10^{-3} mol dm⁻³ for sulfathiazole in water at 310K can be given.

The solubility of sulfathiazole in aqueous buffers have been studied at two temperatures (29,30,31) as shown in Table II. There are slight differences in the pH values reported and it is assumed that pH 5.9 and pH 6.9 can be considered as pH 6 and pH 7 for purposes of this evaluation.

Table II: Solubility of Sulfathiazole in aqueous buffer systems at various pH values at two temperatures

Reference	pH	10 ³ mol dm ⁻³	
		293K	310K
29	6*	2.115	3.76
30	6	2.00	-
31	6**	-	3.68
29	7	2.820	6.306
30	7	2.54	-
31	7***	-	7.99
29	8	5.640	-
30	8	4.90	-
* pH = 5.906		** pH = 5.9	*** pH = 6.9

At a pH 6,7,8 Krüger-Thiemer (29) and Pulver and Suter (30) give values at 293K, showing good agreement at pH 6 and 7, but a 15% variance at a pH = 8. At pH 6 and 7, the recommended values at 293K are 2.06×10^{-3} mol dm⁻³ and 2.68×10^{-3} mol dm⁻³ respectively. At 310K, Krüger-Thiemer (29) and Langecker (31) provided a set of values at pH 6, and the recommended value is 3.72×10^{-3} mol dm⁻³.

It is instructive to compare the values in buffer and water: the value in water at 293K is 1.62×10^{-3} mol dm⁻³, which is about 78% of that in buffer at pH 6. At neutrality, the water solubility is about 60% of the buffer value. At 310K, however, the aqueous value is 96% of the buffer value. There are several problems associated with the above data at different pH (29-31). There is no recognition of the change in the pkw with temperature which would somewhat affect the pH values in the Table. Pulver and Suter (31) do not give any specific information for methods, purity and error. Krüger-Thiemer (29) use a two hour equilibrium time at 293K which may not be sufficient. In Langecker's work (31) there is an inconsistency in the tabular data which show a higher solubility at pH 4.9 compared to pH 5.9. However, Krüger-Thiemer (29) show an increasing solubility with increasing pH. Therefore, these results while interesting are magnitude directing and considered approximate.

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- (30) Pulver, R.; Suter, R. *Schweiz. Med. Wochenschr.* 1943, 73(13), 403-8.
- (31) Langecker, H. *Arch. Exptl. Path. Pharmacol.* 1948, 205, 291-301.

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Lott, W. A.; Bergeim, F. H. <i>J. Am. Chem. Soc.</i> <u>1939</u> , <i>61</i> , 3593-4.
VARIABLES: One temperature: 26°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p>Solubility of sulfathiazole in water at 26°C is about 60 mg/100 cm³ (2.35×10^{-3} mol dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Nothing specified	SOURCE AND PURITY OF MATERIALS: Sulfathiazole, mp 197-7.5°C (uncor) and 202.0-2.5°C (cor) was prepd by the authors. Purity of the water was not specified.
	ESTIMATED ERROR: Nothing specified
	REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Trefouët, M. <i>Bull. Acad. Med. Paris</i> <u>1941</u> , 124, 546-54.
VARIABLES: One temperature: 37°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: Solubility of sulfathiazole in water at 37°C is 0.6 part per 100 parts water (2.35×10^{-2} mol kg ⁻¹ , water, compiler).	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Sulfathiazole was diazotized, coupled with N-naphthyl-1-N-diethyl-3-propylenediamine and assayed colorimetrically.	SOURCE AND PURITY OF MATERIALS: Nothing specified
	ESTIMATED ERROR: Nothing specified
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:												
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0]		Clark, W. G.; Strakosch, E. A.; Levitan, N. I. <i>J. Lab. Clin. Med.</i> <u>1942</u> , 28, 188-9.												
(2) Water; H ₂ O; [7732-18-5]														
VARIABLES:		PREPARED BY:												
Temperature		R. Piekos												
EXPERIMENTAL VALUES:														
<table><tr><td rowspan="2">t/°C</td><td colspan="2">Solubility</td></tr><tr><td>g/100 g water</td><td>10³ mol kg⁻¹ water^a</td></tr><tr><td>26</td><td>0.0502</td><td>1.96</td></tr><tr><td>37</td><td>0.0960</td><td>3.76</td></tr></table>				t/°C	Solubility		g/100 g water	10 ³ mol kg ⁻¹ water ^a	26	0.0502	1.96	37	0.0960	3.76
t/°C	Solubility													
	g/100 g water	10 ³ mol kg ⁻¹ water ^a												
26	0.0502	1.96												
37	0.0960	3.76												
^a Calculated by compiler														
AUXILIARY INFORMATION														
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:												
A small tinted glass container contg excess sulfathiazole in water was shaken in a water bath thermostat for 24 h. The satd soln was then filtered by aspiration through a washed and dried asbestos filter stick into a weighed weighing bottle. The entire app was kept at the temp at which the compd was dissolved. The amt dissolved was then detd by the method of Bratton and Marshall (1), using a photoelectric colorimeter.		Neither source nor purity of sulfathiazole 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. <i>J. Biol. Chem.</i> <u>1939</u> , 128, 537.												

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Benzenesulfonamide, 4-amino-N-2 thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0] (2) Water; H ₂ O; [7732-18-5]		Sapozhnikova, N. V.; Postovskii, I. Ya. Zh. Prikl. Khim. 1944, 17, 427-34.	
VARIABLES:		PREPARED BY:	
Temperature		R. Piekos	
EXPERIMENTAL VALUES:			
t/°C	Solubility		
	Weight%	10 ³ mol kg ⁻¹ water ^a	
20	0.0370	1.45	
37	0.0880	3.45	
50	0.1680 ^b	6.59	
75	0.530	20.87	
99	1.20; 1.32	47.57 ; 52.39	
^a calculated by compiler			
^b calculated from the heat of dissolution			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Sulfathiazole was dissolved in water to form a satd soln which was occasionally agitated in a glass vessel immersed in a thermostat. The equilibrium was usually attained after 1 h. Five to 100-cm ³ samples of the satd soln were placed in Pt crucibles or dishes and evapd to dryness at temps lower than 110-115°C. The residue was dried to const wt at 105-110°C and weighed.		Pure, recrystd sulfathiazole was used. Its mp conformed to that reported in the literature. Purity of the water was not specified.	
		ESTIMATED ERROR: Soly: quite reliable 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-N-2-thiazolyl- (sulfathiazole); [72-14-0] (2) Water; H ₂ O; [7732-18-5]	ORIGINAL MEASUREMENTS: Weinstein, L.; McDonald, A. <i>Science</i> , <u>1945</u> , 101, 44-5.
VARIABLES: One temperature: 20°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of sulfathiazole in water at 20°C is 69 mg/100 cm³ water (2.7 x 10⁻³ mol kg⁻¹, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Nothing specified	SOURCE AND PURITY OF MATERIALS: Nothing specified
	ESTIMATED ERROR: Nothing specified
	REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Becher, R.; Leya, S. <i>Experientia</i> , <u>1946</u> , 2, 459-60.
VARIABLES: One temperature: 18-19°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of sulfathiazole in water at room temperature (18-19°C) is 50 mg% (2.0×10^{-3} mol dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: After standing for more than two days the soln of sulfathiazole in water was filtered and sulfathiazole was assayed in the filtrate colorimetrically by the method of Druey and Oesterheld (1).	SOURCE AND PURITY OF MATERIALS: Nothing specified
	ESTIMATED ERROR: Nothing specified
	REFERENCES: 1. Druey, J.; Oesterheld, G. <i>Helv. Chim. Acta</i> <u>1942</u> , 25, 753.

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Langecker, H. <i>Arch. Exptl. Path. Pharmacol.</i> <u>1948</u> , 205, 291-301.
VARIABLES: One temperature: 37°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p>Solubility of sulfathiazole in water at 37°C is 95 mg% (3.721×10^{-3} mol dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: <p>An excess of sulfathiazole was boiled with water and left for 24 h in a vessel protected from access of CO₂. The concn of sulfanilamide was detd by the method of Bratton and Marshall (1) using a Havemann colorimeter (2), as well as by microanal detn of the solid residue.</p>	SOURCE AND PURITY OF MATERIALS: Nothing specified
	ESTIMATED ERROR: Nothing specified
	REFERENCES: 1. Bratton, A. G.; Marshall, E. K. <i>J. Biol. Chem.</i> <u>1939</u> , <i>128</i> , 537. 1. Havemann, R. <i>Klin. Wochenschr.</i> <u>1940</u> , p. 503.

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_3S_2$; [72-14-0] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Neish, W. J. P. <i>Rec. trav. chim.</i> <u>1948</u> , 67, 361-71.
VARIABLES: One temperature: 37°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: Solubility of sulfathiazole in water at 37°C is 490 γ /ml (1.9×10^{-3} mol dm^{-3} , compiler).	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: A suspension of sulfathiazole in water was kept for 5 h at 37°C and 1 h at room temp before filtration. Soly was detd by the Westfall's method (1) based on diazotization of the sulfonamide, coupling with Na 2-napthol-3,6-disulfonate and comparing the color with that of a satd soln in a Klett colorimeter.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole : not specified. The distd water was used. ESTIMATED ERROR: Nothing specified. REFERENCES: 1. Westfall, B. B. <i>J. Nat. Cancer Inst.</i> <u>1945</u> , 6, 23.

COMPONENTS:			ORIGINAL MEASUREMENTS:	
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0] (2) Water; H ₂ O; [7732-18-5]			Kuhnert-Brandstötter, M.; Martinek, A. <i>Microchim. Technoanal. Acta</i> <u>1956</u> , 909-19.	
VARIABLES:			PREPARED BY:	
Temperature			R. Piekos	
EXPERIMENTAL VALUES:				
Saturation solubility ^a				
t/°C	Crystalline form I		Crystalline form II	
	g/100 g solution	10 ² mol kg ⁻¹ solution ^b	g/100 g solution	10 ² mol kg ⁻¹ solution ^b
20.0	0.090	0.352	0.045	0.176
30.0	0.130	0.509	--	--
30.5	--	--	0.070	0.274
40.0	0.180	0.705	0.100	0.392
50.0	0.265	1.038	0.180	0.705
59.5	0.410	1.606	0.290	1.136
69.5	0.610	2.389	--	--
70.0	--	--	0.515	2.017
^a Numerical data received from the authors ^b Calculated by compiler				
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:	
Sulfathiazole and water were placed in a polyethylene vessel, agitated for 3 h, filtered, and the sulfonamide was assayed in the filtrate gravimetrically. The solid phase was examd thermomicroscopically for identity of the cryst form.			A comm available form II of sulfathiazole was used. Form I was obtained by keeping the comm reagent at 170°C for 2 h. Distilled water was used.	
			ESTIMATED ERROR:	
			Soly: not specified. Temp: ±0.5°C (authors).	
			REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0] (2) Water; H ₂ O; [7732-18-5]		Sanchez, F.M.E. Rev. Fac. Farm. Univ. Central Venezuela 1962, 3(7), 31-45.	
VARIABLES:		PREPARED BY:	
Temperature		R. Piekos	
EXPERIMENTAL VALUES:			
Solubility of crystalline form A of sulfathiazole			
t/°C	mg/1000 cm ³ solution	10 ³ mol dm ⁻³ a	
30	600.00	2.350	
35	780.00	3.055	
40	1025.00	4.015	
45	1310.00	5.131	
50	1750.00	6.854	
a Calculated by compiler			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
The soly was detd by the std Hill method (1): two 0.50-mg samples of sulfathiazole were placed in a 100-ml conical test tubes together with 35 ml of water and stoppered. One of the solns was heated to 55°C and the other kept at a given temp. Both solns were then kept in a const temp bath. Five-ml samples were withdrawn through a filter into 500-ml flasks, dild to the mark with water and sulfathiazole was assayed at 283 nm using a Beckman DU spectrophotometer.		Cryst form A of sulfathiazole was prepd by moistening a sample of a FNAR grade sulfathiazole with abs EtOH followed by drying the sample for 4 h at 60°C under vacuum. Microscopic detn of the mp showed the specimen to contain 100% of form A, mp 173-5°C. Purity of the water was not specified.	
		ESTIMATED ERROR:	
		Soly: not specified. Temp: ±0.01°C (author).	
		REFERENCES:	
		1. Weissberger, <i>Physical methods</i> , Pt. I, third edition, p. 677.	

COMPONENTS:		ORIGINAL MEASUREMENTS:															
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0]		Sekiguchi, K.; Ito, K. Chem. Pharm. Bull. 1965, 13(4), 405-13.															
(2) Water; H ₂ O; [7732-18-5]																	
VARIABLES:		PREPARED BY:															
Temperature		R. Piekos															
EXPERIMENTAL VALUES:																	
<table><tr><td rowspan="2">t/°C</td><td colspan="2">Solubility</td></tr><tr><td>10³ mol dm⁻³ solution</td><td>g dm⁻³ a</td></tr><tr><td>15</td><td>1.047</td><td>0.2673</td></tr><tr><td>25</td><td>1.837</td><td>0.4690</td></tr><tr><td>35</td><td>3.122</td><td>0.7971</td></tr></table>				t/°C	Solubility		10 ³ mol dm ⁻³ solution	g dm ⁻³ a	15	1.047	0.2673	25	1.837	0.4690	35	3.122	0.7971
t/°C	Solubility																
	10 ³ mol dm ⁻³ solution	g dm ⁻³ a															
15	1.047	0.2673															
25	1.837	0.4690															
35	3.122	0.7971															
aCalculated by compiler																	
AUXILIARY INFORMATION																	
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:															
In a 200-ml egg-plant type flask, immersed in a thermostat, an excess of sulfathiazole was placed with 100 ml of redistd water (pH 5.7~5.9) which was previously kept at appropriate temp. Immediately after addn of water, the mixt was vigorously agitated with an elec stirrer. Aliquots were withdrawn at certain time intervals with a pipet equipped with a filter, and the concn of solute was detd spectrophotometrically at 283 mμ.		Sulfathiazole was a comm product of J.P. grade. The most stable polymorphic modification was used. Redistd water was used.															
		ESTIMATED ERROR:															
		Soly: not specified Temp: ±0.05°C (authors)															
		REFERENCES:															

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Gusyakov, V.P.; Likhol'ot, N.M.; Kutna, I.M. <i>Farm. Zh. (Kiev)</i> <u>1967</u> , 22(3), 34-9.
VARIABLES: One temperature: 20°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of sulfathiazole in water at 20°C is 0.043 g/100 ml (1.7×10^{-3} mol dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: An excess of sulfathiazole in water was equilibrated for 24 h in an ampul immersed in a water thermostat. Aliquots of the satd soln were withdrawn through a filter and the sulfathiazole content was assayed in the filtrate photometrically.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole conformed to the requirements of the State Pharmacopeia IX. Purity of the water was not specified.
	ESTIMATED ERROR: Soly: not specified. Temp: $\pm 0.1^\circ\text{C}$ (authors).
	REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0] (2) Water; H ₂ O; [7732-18-5]		Ito, K.; Sekiguchi, K. Chem. Pharm. Bull. 1967, 15(4), 420-6.	
VARIABLES:		PREPARED BY:	
Temperature		R. Piekos	
EXPERIMENTAL VALUES:			
t/°C	Solubility		
	10 ³ mol dm ⁻³ soln	g dm ⁻³ ^a	
20	1.394	0.3559	
25	1.837	0.4690	
30	2.400	0.6127	
35	3.122	0.7971	
^a Calculated by compiler			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
The earlier described method (1) was used: in a 200-ml egg-plant type flask immersed in a thermostat, an excess of sulfathiazole was placed with 100 ml of distd water which was previously kept at appropriate temp. Immediately after addn of water the mixt was vigorously agitated by an elec stirrer. Aliquots were withdrawn at certain time intervals with a pipet equipped with a filter and the concn of solute was detd spectrophotometrically at 283 mμ.		Polymorphic modifications of sulfathiazole (source not specified) were prep'd by the method of Grove (2). Distd water was used.	
		ESTIMATED ERROR:	
		Nothing specified.	
		REFERENCES:	
		1. Sekiguchi, K.; Ito, K. Chem. Pharm. Bull, 1965, 13(4), 405. 2. Grove, D. C.; Keenan, G. L. J. Am. Chem. Soc. 1941, 63, 97.	

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Yamazaki, M.; Aoki, M.; Kamada, A. ; Yata, N. <i>Yakuzaiigaku</i> <u>1967</u> , 27(1), 37-40.
VARIABLES: One temperature: 30°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p>Solubility of sulfathiazole in water at 30°C is 2.34 mmol/L (0.597 g dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Sulfathiazole (0.5 g) was placed in an L-shaped tube together with 20 ml of water. The mixt was then shaken in a thermostat until equilibrium was attained. The sulfathiazole was then assayed in the supernatant spectrophotometrically at 545 nm on a Beckman DU spectrophotometer. The results were taken from a calibration graph.	SOURCE AND PURITY OF MATERIALS: Nothing specified
	ESTIMATED ERROR: Soly: not specified Temp: ±1°C (authors)
	REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Shkadova, A. I. <i>Farm. Zh. (Kiev)</i> <u>1969</u> , 24(3), 39-41.
VARIABLES: One temperature: 20°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of sulfathiazole in water at 20°C is 0.15×10^{-2} mol/kg (3.8×10^{-2} g/100 g, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: A satd aqueous soln of sulfathiazole was equilibrated in a water thermostat at $20 \pm 0.1^\circ$ C. The concn of sulfathiazole was detd by alkalimetric titration.	SOURCE AND PURITY OF MATERIALS: Purity of sulfathiazole conformed to the requirements of the State Pharmacopeia IX. Distd water was used.
	ESTIMATED ERROR: Soly: not specified. Temp: $\pm 0.1^\circ$ C (author).
	REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Mehta, S. C.; Bernardo, P. D.; Higuchi, W. I.; Simonelli, A. P. <i>J. Pharm. Sci.</i> 1970, 59(5), 638-44.
VARIABLES: One temperature: 30°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of sulfathiazole in water at 30°C is 0.065 g/100 g (2.5×10^{-3} mol kg⁻¹, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: An excess of the amount of the recrystd sulfathiazole needed to produce a satd soln was placed in a volumetric flask with water and agitated in a water bath at 30°C. Duplicate samples were withdrawn at 12-24 h intervals, filtered through a 0.45-μ Millipore filter, and analyzed spectrophotometrically.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole (source not specified) was purified by crystallization. Purity of the water was not specified.
	ESTIMATED ERROR: Nothing specified.
	REFERENCES:

COMPONENTS:			ORIGINAL MEASUREMENTS:	
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0]			Kanke, M.; Sekiguchi, K. Chem. Pharm. Bull. 1973, 21(4), 878-84.	
(2) Water; H ₂ O; [7732-18-5]				
VARIABLES:			PREPARED BY:	
Temperature			R. Piekos	
EXPERIMENTAL VALUES:				
Solubility				
t/°C	α - form		β - form	
	g/liter	10 ³ mol dm ^{-3a}	g/liter	10 ³ mol dm ^{-3a}
25	0.465	1.821	0.840	3.290
30	0.594	2.326	1.100	4.308
35	0.790	3.094	1.367	5.354
40	1.040	4.073	1.690	6.619
45	1.350	5.288	2.115	8.284
49	1.683	6.592	2.544	9.964
aCalculated by compiler				
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:	
About 1.5 g of sulfathiazole was placed in 100 ml of water and agitated at 600 rpm. Aliquots of the soln were taken with a glass syringe at short time intervals at the beginning of each expt and then at about hourly intervals until equilibrium was attained. The sample soln was then immediately filtered through a 0.45-μ membrane filter and a carefully measured aliquot was dild for spectrophotometric assay on a Hitachi Perkin-Elmer 139 spectrophotometer at 283 nm.			α-Sulfathiazole: comm product of the JP VII grade was recrystd from distd water. β-Sulfathiazole, mp 200-2°C, was recrystd from ProH. Both forms were characterized by instrumental method. Purity of the water was not specified.	
			ESTIMATED ERROR:	
			Nothing specified.	
			REFERENCES:	

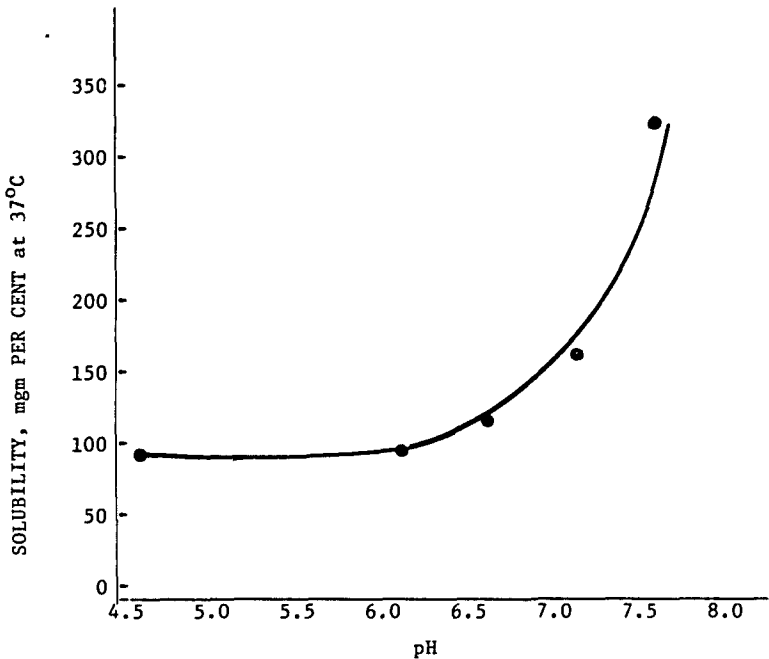
COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Kaneniwa, N.; Watari, N. <i>Chem. Pharm. Bull.</i> <u>1978</u> , <i>26</i> (3), 813-26.
VARIABLES: One temperature: 37°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p>Solubility of sulfathiazole in water at 37°C is 0.879 mg/ml solution (3.44×10^{-3} mol dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: <p>An excess of sulfathiazole was placed in a flask contg 25 ml of water. The flask was shaken (2 strokes/s at the amplitude of 3 cm) in a thermostatically controlled water bath at 37°C. One-ml sample was withdrawn every 6 h (total equilibration period was 3-5 days) using a warmed Millipore filter syringe with a filter pore size of 0.45 μ (Millipore HAWP 01300) and the filtrate was dild with water and assayed spectrophotometrically (1).</p>	SOURCE AND PURITY OF MATERIALS: <p>Commercial sulfathiazole of the Japanese Pharmacopeia grade and distd water were used.</p> ESTIMATED ERROR: Soly: not specified. Temp: ±0.05°C (authors).
	REFERENCES: 1. Kaneniwa, N.; Watari, N. <i>Chem. Pharm. Bull.</i> <u>1974</u> , <i>22</i> , 1699.

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Badawi, A. A.; El-Sayed, A. A. <i>J. Pharm. Sci.</i> <u>1980</u> , <i>69</i> (5), 492-7.
VARIABLES: One temperature: 25°	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p>Solubility of sulfathiazole in water at 25°C is 0.78 mg/ml water (3.05×10^{-3} mol dm⁻³ water, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: A weighed excess of sulfathiazole was placed in a 25-ml ampul contg 10 ml of water. The ampul was sealed and placed on a rotating shaft (42 rpm) immersed in a water bath at 25±1°C. Duplicate samples were withdrawn, filtered, and assayed spectrophotometrically at 283 nm.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole was of the BP 1963 purity. Purity of the water was not specified.
	ESTIMATED ERROR: Soly: not specified. Temp: ±1°C (authors)
	REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Watari, N.; Kaneniwa, N.; Hanano, M. <i>Int. J. Pharm.</i> <u>1980</u> , <i>6</i> (2), 155-66.
VARIABLES: One temperature: 37°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: Solubility of sulfathiazole in water at 37°C is 87.9 mg/100 ml (3.44×10^{-3} mol dm ⁻³ , compiler).	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: The earlier developed method was employed (1), whereby an excess of sulfathiazole, required to saturate medium, was placed in a flask contg 25 ml of water. The flask was shaken (2 strokes/s) at an amplitude of 3 cm, in a thermostatically controlled bath. One-ml sample was removed every 6 h (total equilibration time was 3-5 days) using a warmed Millipore filter syringe with a filter pore size of 0.45 μ (Millipore HAWP 01300) and the filtrate was dild with water and assayed spectrophotometrically.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole was of the Japanese Pharmacopeia grade. Distilled water was used. ESTIMATED ERROR: Soly: not specified Temp: $\pm 0.05^\circ\text{C}$ (authors) REFERENCES: 1. Kaneniwa, N.; Watari, N. <i>Chem. Pharm. Bull.</i> <u>1974</u> , <i>22</i> , 1699.

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Rupprecht, H.; Ziller, K. H. <i>Pharmazie</i> , <u>1981</u> , 36(4), 298.
VARIABLES: One temperature: 20°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of sulfathiazole in water at 20°C is 40.9 mg/100 ml (1.60×10^{-3} mol dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Fifty ml of a suspension contg 2.0 g of sulfathiazole was placed in a thermostat and stirred with a magnetic stirrer. The concn of the solute was monitored continuously after filtration through a G3 or G4 fritted-glass filters by means of a Knauer differential refractometer or a Shimadzu 100-02 UV spectrophotometer. The cuvetts of the refractometer were thermostated. The variations of the refractive index or light absorption were recorded as a function of time by means of a Servogor 220 two-line recorder.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole: neither source nor purity was specified. Distilled water was used. ESTIMATED ERROR: Nothing specified REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Miseta, M.; Kedvessy, G.; Selmeczi, B. <i>Pharmazie</i> <u>1983</u> , <i>38</i> (5), 326-7.
VARIABLES: One temperature: 20°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p>Solubility of sulfathiazole in water at 20°C is 1 part in 3000 parts of water (1.3×10^{-3} mol kg⁻¹ water - compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Soly was detd by the Pharmacopeia Hungarica V method. The equilibration time was 2 days with occasional shaking (personal communication). The concn of the solute in the satd soln was detd spectrophotometrically at 282 nm using a Spektromom 195 spectrophotometer.	SOURCE AND PURITY OF MATERIALS: The source and purity of sulfathiazole was not specified. Distilled water was used.
	ESTIMATED ERROR: Soly: not specified Temp: ±2°C (personal communication).
	REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl; (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Sodium hydroxide; NaOH; [1310-73-2] (3) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Rose, F.L.; Martin, A. R.; Bevan, H.G.L. <i>J. Pharm. Exp. Therap.</i> <u>1943</u> , 77, 127-42.												
VARIABLES: <p style="text-align: center;">pH</p>	PREPARED BY: <p style="text-align: center;">R. Piekos</p>												
EXPERIMENTAL VALUES: <div style="text-align: center;">  <p>The graph plots Solubility (mgm per cent at 37°C) on the y-axis (0 to 350) against pH on the x-axis (4.5 to 8.0). Five data points are plotted, showing a sharp increase in solubility as pH rises above 6.0.</p> <table border="1"> <caption>Estimated data points from the graph</caption> <thead> <tr> <th>pH</th> <th>Solubility (mgm per cent at 37°C)</th> </tr> </thead> <tbody> <tr> <td>4.5</td> <td>90</td> </tr> <tr> <td>6.1</td> <td>95</td> </tr> <tr> <td>6.6</td> <td>115</td> </tr> <tr> <td>7.1</td> <td>160</td> </tr> <tr> <td>7.6</td> <td>325</td> </tr> </tbody> </table> </div>		pH	Solubility (mgm per cent at 37°C)	4.5	90	6.1	95	6.6	115	7.1	160	7.6	325
pH	Solubility (mgm per cent at 37°C)												
4.5	90												
6.1	95												
6.6	115												
7.1	160												
7.6	325												
AUXILIARY INFORMATION													
METHOD/APPARATUS/PROCEDURE: An excess of sulfathiazole was stirred in boiling water, the soln was cooled to 37°C, the temp being maintained thermostatically, and 0.1 N NaOH was added to increase the pH. The pH was measured by means of a glass electrode-calomel half-cell system, and was permitted to reach equilibrium before a reading was taken. The concn of sulfathiazole in soln was detd colorimetrically by withdrawing a sample through a filter-tip into a preheated micropipet.	SOURCE AND PURITY OF MATERIALS: The source and purity of sulfathiazole was not specified. Water was doubly distilled. ESTIMATED ERROR: Nothing specified REFERENCES:												

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Sodium hydroxide; NaOH; [1310-73-2] (3) Water; H_2O ; [7732-18-5]		ORIGINAL MEASUREMENTS: Holz, E.; Garcia Onandia, A.; Holz, S. <i>Acta Cient. Venezolana</i> <u>1955</u> , 6(2), 68-73.																																				
VARIABLES: Concentration of NaOH		PREPARED BY: R. Piekos																																				
EXPERIMENTAL VALUES: <table border="1"> <thead> <tr> <th>Concentration of NaOH soln</th> <th>Volume of the NaOH soln required to dissolve 1 g of sulfathiazole at 26°C</th> <th>Solubility of sulfathiazole at 26°C</th> </tr> <tr> <th>N</th> <th>cm³</th> <th>mol dm⁻³ NaOH soln^a</th> </tr> </thead> <tbody> <tr><td>1/10</td><td>41.650</td><td>0.0940</td></tr> <tr><td>1/4</td><td>16.650</td><td>0.2352</td></tr> <tr><td>1/2</td><td>8.325</td><td>0.4705</td></tr> <tr><td>1.0</td><td>4.175</td><td>0.9382</td></tr> <tr><td>1.5</td><td>2.750</td><td>1.4243</td></tr> <tr><td>1.75</td><td>2.425</td><td>1.6152</td></tr> <tr><td>1.8</td><td>5.200</td><td>0.7530</td></tr> <tr><td>1.9</td><td>7.200</td><td>0.5440</td></tr> <tr><td>2.0</td><td>7.833</td><td>0.5000</td></tr> <tr><td>2.5</td><td>46.830</td><td>0.0836</td></tr> </tbody> </table> <p>^a calculated by compiler</p>			Concentration of NaOH soln	Volume of the NaOH soln required to dissolve 1 g of sulfathiazole at 26°C	Solubility of sulfathiazole at 26°C	N	cm ³	mol dm ⁻³ NaOH soln ^a	1/10	41.650	0.0940	1/4	16.650	0.2352	1/2	8.325	0.4705	1.0	4.175	0.9382	1.5	2.750	1.4243	1.75	2.425	1.6152	1.8	5.200	0.7530	1.9	7.200	0.5440	2.0	7.833	0.5000	2.5	46.830	0.0836
Concentration of NaOH soln	Volume of the NaOH soln required to dissolve 1 g of sulfathiazole at 26°C	Solubility of sulfathiazole at 26°C																																				
N	cm ³	mol dm ⁻³ NaOH soln ^a																																				
1/10	41.650	0.0940																																				
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2.5	46.830	0.0836																																				
AUXILIARY INFORMATION																																						
METHOD/APPARATUS/PROCEDURE: Nothing specified		SOURCE AND PURITY OF MATERIALS: Nothing specified. Distd water was used.																																				
		ESTIMATED ERROR: Nothing specified																																				
		REFERENCES:																																				

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Sodium chloride; NaCl; [7647-14-5] (3) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Becher, R.; Leya, S. <i>Experientia</i> <u>1946</u> , 2, 459-60.
VARIABLES: One temperature: 18-19°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: Solubility of sulfathiazole in a 5% NaCl solution at room temperature (18-19°C) is 45 mg% (1.8×10^{-3} mol dm ⁻³ , compiler).	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: After standing for more than two days the soln of sulfathiazole was filtered and sulfathiazole was assayed in the filtrate colorimetrically by the method of Druey and Oesterheld (1).	SOURCE AND PURITY OF MATERIALS: Nothing specified
	ESTIMATED ERROR: Nothing specified
	REFERENCES: 1. Druey, J.; Oesterheld, G. <i>Helv. Chim. Acta</i> <u>1942</u> , 25, 753.

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl; (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Sodium chloride, NaCl; [7647-14-5] (3) Water; H_2O ; [7732-18-5]		Avico, U.; Cavazutti, G.; di Francesco, R.; Signoretti Ciranni, E.; Zuccaro, P. <i>Farmaco, Ed. Pratica</i> 1975, 30(1), 40-6.	
VARIABLES:		PREPARED BY:	
Temperature		R. Piekos	
EXPERIMENTAL VALUES:			
t/°C	Solubility of amorphous sulfathiazole in equimolal NaCl solutions		
	g/100 g water	$10^3 \text{ mol kg}^{-1} \text{ water}^a$	
25	0.627	2.456	
35	1.010	3.956	
40	1.214	4.755	
^a Calculated by compiler			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
A soln of Na salt of sulfathiazole was added to a HCl soln contg stoichiometric quantity of the acid to neutralize the salt. The neutralization was carried out in a thermostat and the pH of the mixt was maintained close to that of a satd sulfathiazole soln. The procedure was repeated using various initial concns of the reagents to find the max concn of sulfathiazole at which no pptn occurred.		Source and purity of sulfathiazole was not purified. The mp of crystalline sulfathiazole was 200-4°C. Purity of the water was not specified.	
		ESTIMATED ERROR:	
		Nothing specified	
		REFERENCES:	

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Potassium chloride; KCl; [7447-40-7] (3) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Higuchi, T.; Gupta, M.; Busse, L. W. <i>J. Am. Pharm. Assoc., Sci. Ed.</i> <u>1953</u> , 52, 157-61.
VARIABLES: One temperature: 25°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of sulfathiazole in a KCl solution (ionic strength 0.15 M) at 25°C is 0.0373 g/100 cm³ saturated solution (1.46 x 10⁻³ mol dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: A 10-30% excess of sulfathiazole was equilibrated in a sealed vial for 1-8 days. An aliquot of the supernatant was withdrawn with a hypodermic syringe, the liquid was weighed, and the sulfathiazole was detd in it spectrophotometrically at 283 nm using 0.1 M citrate buffer of pH 5 as the solvent.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole (source not specified) was recrystd from hot water. The source and purity of KCl was not specified. Distilled water was used. ESTIMATED ERROR: Soly: the average of the following soly values was given: 0.0372, 0.0373, 0.0384, and 0.0363 g/100 cm ³ satd soln. Temp: not specified. REFERENCES:

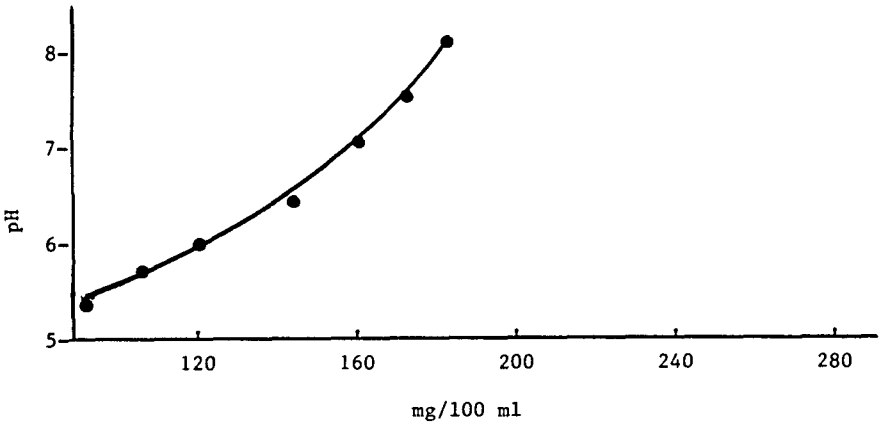
COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Phosphoric acid, disodium salt; Na_2HPO_4 ; [7558-94-4] (3) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Krüger-Thiemer, E. <i>Arch. Dermatol. Syphilis</i> <u>1942</u> , 183, 90-116.
VARIABLES: One temperature: ca 20°C; one pH: 8.74	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p>Solubility of sulfathiazole in a 0.705 M (10%) Na_2HPO_4 solution of pH 8.74, at room temperature (about 20°C), is 0.228 g% (8.93 x 10^{-3} mol dm⁻³ solution, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Sulfathiazole (0.5 g) was dissolved in 10 cm ³ of the 0.705 M (10%) Na_2HPO_4 soln, shaken for 2 h at room temp (about 20°C), and filtered. A 1-cm ³ aliquot of the filtrate was withdrawn, cooled, acidified with 1 cm ³ of 2 N HCl, and the sulfathiazole content was detd colorimetrically by the method of Marshall modified by Kimmig (1) using an Autenrieth colorimeter. The pH was detd on an ultraionograph using a glass electrode.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole was the product manufd by Ciba under the name Cibazol. The source and purity of the remaining materials was not specified. ESTIMATED ERROR: Soly: precision ±5% (author) Temp: not specified pH ; ±0.05 pH unit (author) REFERENCES: 1. Kimmig, J. <i>Arch. Dermatol.</i> <u>1938</u> , 176, 722; <i>Erg. Hyg.</i> <u>1941</u> , 24, 398.

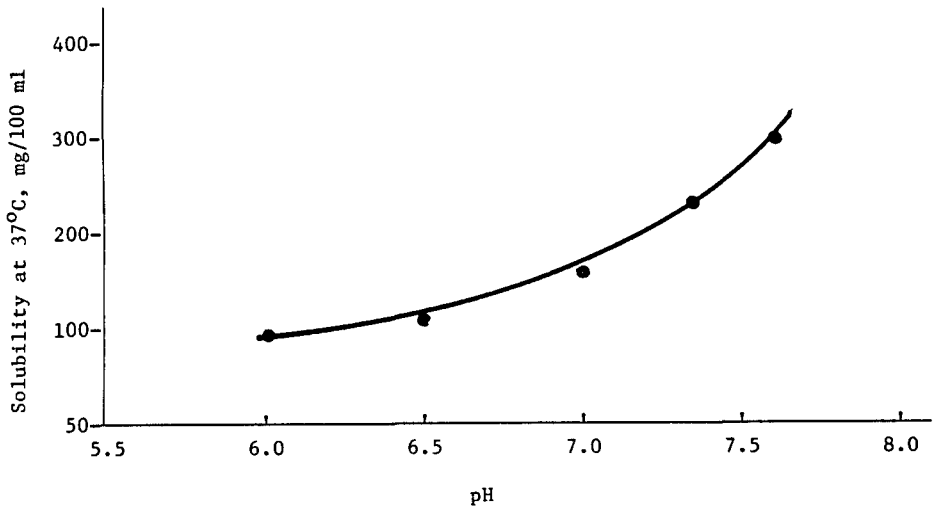
COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Phosphoric acid, monopotassium salt; KH_2PO_4 ; [7778-77-0] (3) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Krüger-Thiemer, E. <i>Arch. Dermatol. Syphilis</i> <u>1942</u> , 183, 90-116.
VARIABLES: One temperature: ca 20°C; one pH: 4.37	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p>Solubility of sulfathiazole in a 0.735 M (10%) KH_2PO_4 solution of pH 4.37, at room temperature (about 20°C), is 0.029 g% (1.13×10^{-3} mol dm⁻³ solution, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Sulfathiazole (0.5 g) was dissolved in 10 cm ³ of the 0.735 M (10%) KH_2PO_4 soln, shaken for 2 h at room temp (about 20°C), and filtered. A 1-cm ³ aliquot of the filtrate was withdrawn, cooled, acidified with 1 cm ³ of 2 N HCl, and the sulfathiazole content was detd colorimetrically by the method of Marshall modified by Kimmig (1) using an Autenrieth colorimeter. The pH was detd on an ultra-ionograph using a glass electrode.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole was the product manufd by Ciba under the name of Cibazol. The source and purity of the remaining materials was not specified. ESTIMATED ERROR: Soly: precision ±5% (author) Temp: not specified pH : ±0.05 pH unit (author) REFERENCES: 1. Kimmig, J. <i>Arch. Dermatol.</i> 176, 722; <i>Erg. Hyg.</i> <u>1941</u> , 24, 398.

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0]		Hawking, F.	
(2) Calcium chloride; CaCl ₂ ; [10043-52-4]		Lancet, <u>1941</u> , 240, 786-8.	
(3) Potassium chloride; KCl; [7447-40-7]			
(4) Sodium chloride; NaCl; [7647-14-5]			
(5) Water; H ₂ O; [7732-18-5]			
VARIABLES:		PREPARED BY:	
Temperature		R. Piekos	
EXPERIMENTAL VALUES:			
t/°C	Solubility in bicarbonate-free Locke's solution ^a		
	mg/100 ml	10 ³ mol dm ⁻³ b	
17	36	1.4	
36	91	3.6	
^a The solution contained NaCl 9 g, KCl 0.2 g, CaCl ₂ 0.2 g, water 1 liter, and had a pH of 6.8.			
^b Calculated by compiler			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Sulfathiazole was shaken up with the bicarbonate-free Locke's soln for many hours in a tube which was corked to prevent loss of CO ₂ . The supernatant was filtered through a paper, dild in a hot room to prevent pptn, and sulfathiazole was detd by the method of Marshall and Litchfield (1).		Nothing specified	
		ESTIMATED ERROR:	
		Soly: average of 3 detns has been given (authors).	
		Temp: not specified.	
		REFERENCES:	
		1. Marshall, E. K., Jr.; Litchfield, J. T., Jr. Science, <u>1938</u> , 88, 85.	

COMPONENTS:				ORIGINAL MEASUREMENTS:			
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0]				Krüger-Thiemer, E. Arch. Dermatol. Syphilis 1942, 183, 90-116.			
(2) Phosphoric acid, disodium salt; Na ₂ HPO ₄ ; [7558-94-4]				PREPARED BY: R. Piekos			
(3) Phosphoric acid, monopotassium salt; KH ₂ PO ₄ ; [7778-77-0]							
(4) Water; H ₂ O; [7732-18-5]							
VARIABLES: Temperature, pH							
EXPERIMENTAL VALUES:							
Composition of 1/15 M phosphate buffer solutions			pH	Solubility			
Na ₂ HPO ₄	KH ₂ PO ₄	% content		Room temp (ca 20°C)		37°C	
			g%	10 ³ mol dm ⁻³ solution ^a	g%	10 ³ mol dm ⁻³ solution ^a	
1.0	99.0	0.91	4.944	0.053	2.076	-	-
10.0	90.0	0.91	5.906	0.054	2.115	0.096	3.760
61.1	38.9	0.93	7.005	0.072	2.820	0.161	6.306
9.5	0.5	0.733 ^b	7.51	0.089	3.486	-	-
94.7	5.3	0.95	8.018	0.144	5.640	-	-
 ^a Calculated by compiler ^b Molar content; 10% buffer solution							
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE:				SOURCE AND PURITY OF MATERIALS:			
Sulfathiazole (0.5 g) was dissolved in 10 cm ³ of a buffer soln, shaken for 2 h at 20°C (or left for 48 h at 37°C), and filtered at respective temp. A 1 cm ³ aliquot of the filtrate was then withdrawn, cooled (dild for expts at 37°C), acidified with 1 cm ³ of 2 N HCl, and the sulfathiazole content was detd colorimetrically by the method of Marshall modified by Kimmig (1) using an Autenrieth colorimeter. The pH was detd on an ultra-ionograph using a glass electrode.				Sulfathiazole was the product manufd by Ciba under the name of Cibazol. The source and purity of the remaining reagents was not specified.			
				ESTIMATED ERROR:			
				Soly: precision ±5% (author) Temp: not specified pH : ±0.05 pH unit (author)			
				REFERENCES:			
				1. Kimmig, J. Arch. Dermatol. 176, 722; Erg. Hyg. 1941, 24, 398.			

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (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: Pulver R.; Suter, R. <i>Schweiz. Med. Wochenschr.</i> <u>1943</u> , 73(13), 403-8.															
VARIABLES: pH		PREPARED BY: R. Piekos															
EXPERIMENTAL VALUES:																	
<table border="1"> <thead> <tr> <th rowspan="2">pH</th> <th colspan="2">Solubility of sulfathiazole in M/15 phosphate buffers (according to Sørensen) at 20°C</th> </tr> <tr> <th>mg%</th> <th>$10^3 \text{ mol dm}^{-3} \text{ a}$</th> </tr> </thead> <tbody> <tr> <td>6.0</td> <td>51</td> <td>2.00</td> </tr> <tr> <td>7.0</td> <td>65</td> <td>2.54</td> </tr> <tr> <td>8.0</td> <td>125</td> <td>4.90</td> </tr> </tbody> </table>				pH	Solubility of sulfathiazole in M/15 phosphate buffers (according to Sørensen) at 20°C		mg%	$10^3 \text{ mol dm}^{-3} \text{ a}$	6.0	51	2.00	7.0	65	2.54	8.0	125	4.90
pH	Solubility of sulfathiazole in M/15 phosphate buffers (according to Sørensen) at 20°C																
	mg%	$10^3 \text{ mol dm}^{-3} \text{ a}$															
6.0	51	2.00															
7.0	65	2.54															
8.0	125	4.90															
<p>^acalculated by compiler</p>																	
AUXILIARY INFORMATION																	
METHOD/APPARATUS/PROCEDURE: Nothing specified		SOURCE AND PURITY OF MATERIALS: Nothing specified															
		ESTIMATED ERROR: Nothing specified															
		REFERENCES:															

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (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: Sunderman, F. W.; Pepper, D. S.; Benditt, E. <i>J. Med. Sci.</i> <u>1940</u> , 200, 790-5.
VARIABLES: <p style="text-align: center;">pH</p>	PREPARED BY: <p style="text-align: center;">R. Piekos</p>
EXPERIMENTAL VALUES: <div style="text-align: center;">  <p style="text-align: center;">Solubility of sulfathiazole in phosphate buffer solution at 38°C.</p> </div>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: An excess of sulfathiazole was suspended in buffer solns (prepd by dilg appropriate mixts of Na_2HPO_4 and KH_2PO_4 , 1 part to 10 parts of distd water), agitated and kept in a water bath at 38°C for about 2 h. The solns were then filtered and analysis for total sulfathiazole were made on the filtrates. Sulfathiazole was assayed colorimetrically after coupling with di-Me-l-naphthylamine using a Bausch and Lomb colorimeter fitted with a No. 74 Wratten filter. Standards were made from a stock soln of sulfathiazole contg 200 mg/liter.	SOURCE AND PURITY OF MATERIALS: Distd water was used. The source and purity of the remaining reagents were not specified. ESTIMATED ERROR: Soly: the curve represents a composite of 3 sets of detns (authors). Temp and pH: not specified. REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazol-yl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (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: Frisk, A. R.; Hagerman, G.; Helander, S.; Sjögren, B. <i>Hygiea</i> <u>1946</u> , 108(12), 639-51.
VARIABLES: <p style="text-align: center;">pH</p>	PREPARED BY: <p style="text-align: center;">R. Piekos</p>
EXPERIMENTAL VALUES: <div style="text-align: center;">  </div> <p>The solubility at pH 6.1 is 104 mg/100 ml solvent (4.073×10^{-3} mol dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: An excess of sulfathiazole in the phosphate buffer was shaken at 37°C for 24 h. The concn of the solute was detd by the Bratton and Marshall method (1) using a photoelec colorimeter.	SOURCE AND PURITY OF MATERIALS: Neither source nor purity of the materials was specified.
	ESTIMATED ERROR: Soly: precision ± 8 mg/100 ml (authors). Temp and pH: not specified.
	REFERENCES: 1. Bratton, A. C.; Marshall, E. K. Jr. <i>J. Biol. Chem.</i> <u>1939</u> , 128, 537.

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (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: Frisk, A. R.; Hagerman, G.; Helander, S.; Sjögren, B. <i>Hygiea</i> <u>1946</u> , 108(12), 639-51.
VARIABLES: pH: 6.1	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: The solubility at pH 6.1 is 104 mg/100 ml solvent (4.07×10^{-3} mol dm ⁻³ , compiler). This is the solubility value of sulfathiazole at 37°C.	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: An excess of sulfathiazole in the phosphate buffer was shaken at 37°C for 24 h. The concn of the solute was detd by the Bratton and Marshall method (1) using a photoelec colorimeter.	SOURCE AND PURITY OF MATERIALS: Neither source nor purity of the materials was specified. ESTIMATED ERROR: Soly: precision ± 8 mg/100 ml (authors). Temp and pH: not specified REFERENCES: 1. Bratton, A. C.; Marshall, E. K. Jr. <i>J. Biol. Chem.</i> <u>1939</u> , 128, 537.

COMPONENTS:		ORIGINAL MEASUREMENTS:																		
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0]		Langecker, H. Arch. Exptl. Path. Pharmacol. <u>1948</u> , 205, 291-301.																		
(2) Phosphoric acid, disodium salt; Na ₂ HPO ₄ ; [7558-94-4]																				
(3) Phosphoric acid, monopotassium salt; KH ₂ PO ₄ ; [7778-77-0]																				
(4) Water; H ₂ O; [7732-18-5]		PREPARED BY:																		
VARIABLES:		R. Piekos																		
pH																				
EXPERIMENTAL VALUES:																				
<table><tr><td rowspan="2">pH of the 1/15 M phosphate buffer</td><td colspan="2">Solubility at 37°C</td></tr><tr><td>mg%</td><td>10³ mol dm⁻³ a</td></tr><tr><td>4.9</td><td>108</td><td>4.23</td></tr><tr><td>5.9</td><td>94</td><td>3.68</td></tr><tr><td>6.9</td><td>204</td><td>7.99</td></tr><tr><td>7.5</td><td>356</td><td>13.94</td></tr></table>				pH of the 1/15 M phosphate buffer	Solubility at 37°C		mg%	10 ³ mol dm ⁻³ a	4.9	108	4.23	5.9	94	3.68	6.9	204	7.99	7.5	356	13.94
pH of the 1/15 M phosphate buffer	Solubility at 37°C																			
	mg%	10 ³ mol dm ⁻³ a																		
4.9	108	4.23																		
5.9	94	3.68																		
6.9	204	7.99																		
7.5	356	13.94																		
a Calculated by compiler																				
AUXILIARY INFORMATION																				
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:																		
An excess of sulfathiazole was added to the buffer soln and boiled for 1 h in a sealed ampul followed by keeping the ampul at 37°C. The concn of sulfathiazole was detd colorimetrically by the method of Bratton and Marshall (1) using a Havemann colorimeter (2), as well as by microanal detn of the solid residue.		Source and purity of the materials was not specified.																		
		ESTIMATED ERROR:																		
		Nothing specified																		
		REFERENCES:																		
		1. Bratton, A.G.; Marshall, E.K. Jr. J. Biol. Chem. <u>1939</u> , <u>128</u> , 537.																		
		2. Havemann, R. Klin. Wochenschr. <u>1940</u> , p. 503.																		

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (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: Riess, W. <i>Intern. Congr. Chemotherapy, Proc., 3rd, Stuttgart 1963, 1, 627-32.</i>
VARIABLES: One temperature: 20°C; one pH: 7.4	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of sulfathiazole in a M/15 Sørensen buffer solution (pH 7.4) at 20°C is 75 mg% (2.9×10^{-3} mol dm⁻³ solution, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Sørensen buffer solns of pH varying between 7 and 8 were prepd, satd with sulfathiazole at 20°C, their pH was measured at equilibrium, and the sulfathiazole was assayed colorimetrically. The measured pH values were then plotted against concn, and the soly at pH 7.4 was detd by interpolation (personal communication).	SOURCE AND PURITY OF MATERIALS: Nothing specified ESTIMATED ERROR: Nothing specified REFERENCES:

COMPONENTS: (1) Benzensulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Hydrochloric acid; HCl; [7647-01-0] (3) 1,2,3-Propanetricarboxylic acid, 2-hydroxy-, disodium salt; $C_6H_6Na_2O_7$; [144-33-2] (4) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Kuhnert- Brandstötter, M.; Martinek, A. <i>Microchim. Technoanal. Acta</i> 1956, 909-19.
VARIABLES: One temperature: 20°C; one pH: 3.8	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p>Solubility of crystalline forms I and II of sulfathiazole in a 0.066 M citrate buffer (according to Sørensen) of pH 3.8 at 20°C is 63.4 mg% (2.48×10^{-3} mol dm⁻³, compiler) and 36.1 mg% (1.41×10^{-3} mol dm⁻³, compiler), respectively.</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Sulfathiazole and the buffer soln were placed in a polyethylene vessel, agitated for 3 h, filtered, and the sulfonamide was assayed in the filtrate by uv spectrophotometry using water as a reference and diluent. The solid phase was examd thermomicroscopically for identity of the cryst form.	SOURCE AND PURITY OF MATERIALS: A comm available form II of sulfathiazole was used. Form I was obtained by keeping the comm reagent at 170°C for 2 h. The source and purity of the remaining materials was not specified. Distilled water was used. ESTIMATED ERROR: Soly: not specified pH : not specified Temp: ±0.5°C (authors) REFERENCES:

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0]		Likhol'ot, N. M. <i>Farm. Zh. (Kiev)</i> <u>1965</u> , 20(5), 44-6.	
(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]		PREPARED BY:	
(4) Water; H_2O ; [7732-18-5]		R. Piekos	
VARIABLES:			
pH			
EXPERIMENTAL VALUES:			
pH of McIlvaine's buffer solution		Solubility at 20°C	
	g/100 ml	$10^3 \text{ mol dm}^{-3} \text{ }^a$	
4.1	0.043	1.68	
5.1	0.045	1.76	
5.9	0.049	1.92	
6.5	0.059	2.31	
6.9	0.081	3.17	
7.5	0.153	5.99	
^a Calculated by compiler			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
An earlier described method was employed (1) whereby a small excess of sulfathiazole was equilibrated with 20 ml of the McIlvaine's buffer soln for 8 h in a 50-ml test tube. Aliquots were withdrawn through a filter and sulfathiazole was assayed bromatometrically.		Sulfathiazole: not specified. McIlvaine's buffer solns were prepd from a 0.1 M citric acid solns. Source and purity of the buffer components were not specified.	
		ESTIMATED ERROR:	
		Soly: not specified Temp: $\pm 0.1^\circ\text{C}$ (authors) pH : not specified	
		REFERENCES:	
		1. Gusyakov, V. P.; Likhol'ot, N. M. <i>Farm. Zh. (Kiev)</i> <u>1960</u> , 15(8), 21.	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0]		Gasco, M. R.; Aimonetto, S. <i>Atti Accad. Sci. Torino, Cl. Sci. Fis., Mat. Nat.</i> <u>1979</u> , 113(1-2), 119-22.	
(2) Ethanesulfonic acid, 2-[[3 α , 5 β , 7 α , 12 α)-3,7,12-trihydroxy-24-oxocholan-24-yl]amino]-, monosodium salt (Na taurocholate); $C_{26}H_{45}NO_7S \cdot Na$; [145-42-6]			
(3) Phosphoric acid, disodium salt; Na_2HPO_4 ; [7558-94-4]		PREPARED BY:	
(4) Phosphoric acid, monosodium salt; NaH_2PO_4 ; [7558-80-7]		R. Piekos	
(5) Water; H_2O ; [7732-18-5]			
VARIABLES: Concentration of Na taurocholate; pH			
EXPERIMENTAL VALUES:			
Concentration of Na taurocholate mM/l solution ^a		Solubility of sulfathiazole at 25°C $\mu\text{m/ml}$ solution ^a	
		pH 6.3	pH 7.2
2.0		3.65	6.41
4.0		3.28	6.27
6.0		3.42	5.77
8.0		3.60	6.05
12.0		3.70	6.18
16.0		3.89	6.73
20.0		4.21	7.02
^a Numerical values given by the first author in personal communication.			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
The soly of sulfathiazole was detd by the method of Hofmann (1). In a series of 15-ml glass cylinders with ground-in stoppers, 75 mg of sulfathiazole was suspended in 15 ml of phosphate buffer solns of increasing Na taurocholate concn. The suspensions were agitated for 20 h at 25°C and filtered. The quantity of sulfathiazole dissolved was detd by measuring surface tension by means of a Dognon-Abribat (Prolabo) tensiometer and spectrophotometrically by using a Perkin Elmer EPS-35 spectrophotometer.		Neither source nor purity of the materials was specified. The phosphate buffer was 0.3 M in respect of the Na^+ ion concn.	
		ESTIMATED ERROR:	
		Soly: precision $\pm 2\%$ (authors) pH : precision ± 0.02 pH unit (authors) Temp: $\pm 0.5^\circ\text{C}$ (authors)	
		REFERENCES:	
		1. Hofmann, A. F.; <i>Biochem. J.</i> <u>1963</u> , 89, 57.	

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0]		Gasco, M. R.; Aimonetto, S. Atti Accad. Sci. Torino, Cl. Sci. Fis., Mat. Nat. 1979, 113(1-2), 119-22.	
(2) Ethanesulfonic acid, 2-[[[(3 α, 5 β , 7 α, 12 α)-3,7,12-trihydroxy-24-oxocholan-24-yl]amino]acetyl]amino]-, sodium salt (Na tauroglycocholate); C ₂₈ H ₄₈ N ₂ O ₈ S·Na [11006-55-6]			
(3) Phosphoric acid, disodium salt; Na ₂ HPO ₄ ; [7558-94-4]		PREPARED BY:	
(4) Phosphoric acid, monosodium salt; NaH ₂ PO ₄ ; [7558-80-7]		R. Piekos	
(5) Water; H ₂ O; [7732-18-5]			
VARIABLES: Concentration of Na tauroglycocholate; pH			
EXPERIMENTAL VALUES:			
Concentration of Na tauroglycocholate mM/l solution ^a		Solubility of sulfathiazole at 25°C μM/ml solution ^a	
		pH 6.3	pH 7.2
2.0		3.80	6.69
4.0		3.52	6.50
6.0		3.62	6.32
8.0		3.70	6.41
12.0		3.90	6.43
16.0		4.08	6.50
20.0		4.17	6.52
^a Numerical values given by the first author in personal communication.			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
The soly of sulfathiazole was detd by the Hofmann method (1). In a series of 15-ml glass cylinders with ground-in stoppers, 75 mg of sulfathiazole was placed in 15 ml of phosphate buffer solns of increasing Na tauroglycocholate concn. The suspensions were agitated for 20 h at 25°C and filtered. The quantity of sulfathiazole dissolved was detd by measuring surface tension by means of a Dognon-Abribat (Prolabo) tensiometer and spectrophotometrically on a Perkin Elmer EPS-35 spectrophotometer.		Neither source nor purity of the materials was specified. The phosphate buffer was 0.3 M in respect of the Na ⁺ ion concn.	
		ESTIMATED ERROR:	
		Soly: precision ±2% (authors) pH : precision ±0.02 pH unit (authors) Temp: ±0.5°C (authors)	
		REFERENCES:	
		1. Hofmann, A. F., Biochem. J. 1963, 89, 57.	

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (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. <i>Experientia</i> 1946, 2, 459-60.
VARIABLES: One temperature : 18-19°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of sulfathiazole in a 2.6% neutral sodium pectinate solution ([sodium pectinate] = 6.7×10^{-2} mol kg⁻¹ (n = 1), compiler) at room temperature (18 - 19°C) is 75 mg% (2.9×10^{-3} mol dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: The soln was allowed to stand for more than 2 days at room temp. The soln was then filtered, and sulfathiazole assayed in the filtrate colorimetrically by the method of Druey and Oesterheld (1).	SOURCE AND PURITY OF MATERIALS: Nothing specified.
	ESTIMATED ERROR: Nothing specified.
	REFERENCES: 1. Druey, J.; Oesterheld, G.; <i>Helv. Chim. Acta</i> 1942, 25, 753.

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Cholan-24-oic acid, 3,7,12-trihydroxy-, (3 α , 5 β , 7 α , 12 α)-, monosodium salt (Na cholate); $C_{24}H_{39}NaO_5$; [361-09-1] (3) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Dubois, S.; Tawashi, R. <i>Pharm. Acta Helv.</i> <u>1975</u> , 50, 184-7.
VARIABLES: One temperature: 37°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of sulfathiazole in a 0.04 mol dm⁻³ Na cholate solution at 37°C is 15.60×10^{-4} g/ml (6.110×10^{-3} mol dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Samples were filtered through a Millipore filter 0.45 μ m and the amount of dissolved sulfathiazole was detd spectrophotometrically at 280 nm.	SOURCE AND PURITY OF MATERIALS: USP grade sulfathiazole was used without further treatment. Na cholate was reagent grade. Distilled water was used.
	ESTIMATED ERROR: Nothing specified
	REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Cholan-24-oic acid, 3,7,12-trihydroxy-, (3 α , 5 β , 7 α , 12 α)-, monosodium salt (Na cholate); $C_{24}H_{39}NaO_5$; [361-09-1] (3) F.D. and C. Violet No.1; $C_{39}H_{41}N_3O_6S_2 \cdot Na$; [1694-09-3] (4) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Dubois, S.; Tawashi, R. <i>Pharm. Acta Helv.</i> <u>1975</u> , 50, 184-7.
VARIABLES: One temperature: 37°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p>Solubility of sulfathiazole in a 0.04 mol dm⁻³ Na cholate solution containing 50 µg/ml of F.D. and C. Violet No. 1 at 37°C is</p> <p>14.50 x 10⁻⁴ g/ml (5.68 x 10⁻³ mol dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Samples were filtered through a Millipore filter 0.45 µm and the amount of dissolved sulfathiazole was detd spectrophotometrically at 280 nm.	SOURCE AND PURITY OF MATERIALS: USP grade sulfathiazole, reagent grade Na cholate, certified F.D. and C. Violet No. 1 and distd water were used. ESTIMATED ERROR: Nothing specified REFERENCES:

COMPONENTS:			ORIGINAL MEASUREMENTS:		
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0]			Milosovich , G.		
(2) Ethanol; C ₂ H ₆ O; [64-17-5]			J. Pharm. Sci. <u>1964</u> , <u>53</u> , 484-7.		
(3) Water; H ₂ O; [7732-18-5]					
VARIABLES:			PREPARED BY:		
Temperature			R. Piekos		
EXPERIMENTAL VALUES:					
Solubility in 95% v/v ethanol					
t/°C	Form I		Form II		
	g/1000 g solvent mol kg ⁻¹ a		g/1000 g solvent mol kg ⁻¹ a		
59.1	31.50	0.1234	40.7	0.1594	
48.8	19.80	0.0775	28.1	0.1101	
39.4	14.00	0.0548	21.4	0.0838	
29.6	9.93	0.0389	16.7	0.0654	
24.1	8.15	0.0319	14.2	0.0556	
20.4	7.10	0.0278	13.1	0.0513	
14.5	5.70	0.0223	-	-	
a Calculated by compiler					
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:		
A large excess of form I powder was added to about 500 ml of 95% EtOH in a beaker and held at a desired temp with stirring until equilibrium was obtained. Stirring was stopped, and samples were pipetted through a glass wool to remove suspended particles. The samples were weighed and quant dild with 95% EtOH for spectrophotometric assay at 288 nm. Solubilities of form II were calcd from the dissoln rate date.			A U.S.P. sulfathiazole was used. Form I, mp 174-5°C, was obtained by slow recrystn from warm EtOH. Form II was obtained by heating form I to 180°C. The source and purity of the materials was not specified.		
			ESTIMATED ERROR:		
			Nothing specified		
			REFERENCES:		

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0]		Shkadova, A. I.	
(2) Ethanol; C ₂ H ₆ O; [64-17-5]		Farm. Zh. (Kiev) <u>1969</u> , 24(3), 39-41.	
(3) Water; H ₂ O; [7732-18-5]			
VARIABLES:		PREPARED BY:	
Concentration of ethanol		R. Piekos	
EXPERIMENTAL VALUES:			
Concentration of ethanol		Solubility at 20°C	
mole %	weight %	10 ² mol kg ⁻¹	g/100 g ^a
0	0.00	0.15	0.038
10	22.14	0.76	0.194
20	39.01	1.66	0.424
30	52.31	4.46	1.139
40	63.04	5.53	1.412
50	71.90	5.60	1.430
60	79.33	5.23	1.335
70	85.65	4.71	1.202
80	91.10	3.33	0.842
90	95.83	1.72	0.439
^a Calculated by compiler			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
Sulfathiazole was equilibrated with the solvent in a water thermostat at 20±0.1°C. The concn of sulfathiazole was detd by alkalimetric titration.		Purity of sulfathiazole conformed to the requirements of the State Pharmacopeia IX. The EtOH - water mixts were prepd from abs EtOH (purity and source not specified) and distd water.	
		ESTIMATED ERROR:	
		Soly: not specified	
		Temp: ±0.1°C (author).	
		REFERENCES:	

COMPONENTS:		ORIGINAL MEASUREMENTS:												
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0]		Mehta, S. C.; Bernardo, P. D.												
(2) Ethanol; C ₂ H ₆ O; [64-17-5]		Higuchi, W. I.; Simonelli, A. P.												
(3) Water; H ₂ O; [7732-18-5]		J. Pharm. Sci. 1970, 59(5), 638-44.												
VARIABLES:		PREPARED BY:												
Concentration of ethanol		R. Piekos												
EXPERIMENTAL VALUES:														
<table><tr><td rowspan="2">Vol/vol % ethanol in water</td><td colspan="2">Solubility at 30°C</td></tr><tr><td>g/100 g</td><td>10² mol kg⁻¹ a</td></tr><tr><td>50</td><td>1.30</td><td>5.09</td></tr><tr><td>95</td><td>1.06</td><td>4.15</td></tr></table>				Vol/vol % ethanol in water	Solubility at 30°C		g/100 g	10 ² mol kg ⁻¹ a	50	1.30	5.09	95	1.06	4.15
Vol/vol % ethanol in water	Solubility at 30°C													
	g/100 g	10 ² mol kg ⁻¹ a												
50	1.30	5.09												
95	1.06	4.15												
a Calculated by compiler														
AUXILIARY INFORMATION														
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:												
An excess of the amt of the recrystd sulfa-thiazole needed to produce a satd soln was placed in a volumetric flask with the sol-vent and agitated in a water bath at 30°C. Duplicate samples were withdrawn at 12-24-h intervals, filtered through a 0.45-μ Milli-pore filter, and analyzed spectrophotome-trically.		Sulfathiazole (source not specified) was purified by crystallization. The source and purity of the remaining materials were not specified.												
		ESTIMATED ERROR:												
		Nothing specified												
		REFERENCES:												

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) 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]	ORIGINAL MEASUREMENTS: Dolique, R. ; Foucault, J. <i>Trav. soc. pharm. Montpellier</i> <u>1952</u> , 12, 145-53.
VARIABLES: One temperature: 26-28°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p>Solubility of sulfathiazole in a mixture of 1,2,3-propanetriol and 95° ethanol (2:1 by wt) at 26-28°C is 2.08% (8.32×10^{-2} mol kg⁻¹, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: The sulfathiazole 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: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Urea; CH_4NO ; [57-13-6] (3) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Sobin, S. S. <i>J. Lab. Clin. Med.</i> <u>1942</u> , 27, 1657-8.														
VARIABLES: Concentration of urea	PREPARED BY: R. Piekos														
EXPERIMENTAL VALUES: <div data-bbox="319 486 1114 987"> <table border="1"> <caption>Data points estimated from the graph</caption> <thead> <tr> <th>Percent Urea Solution</th> <th>Solubility at 37°C - mg percent</th> </tr> </thead> <tbody> <tr><td>0.1%</td><td>80</td></tr> <tr><td>1.0%</td><td>105</td></tr> <tr><td>2.5%</td><td>110</td></tr> <tr><td>5.0%</td><td>135</td></tr> <tr><td>7.5%</td><td>140</td></tr> <tr><td>10.0%</td><td>142</td></tr> </tbody> </table> </div> <p>Solubility in a 10 percent urea solution at 37°C is 133.0 mg per 100 cm^3 $(6.208 \times 10^{-3} \text{ mol dm}^{-3}, \text{ compiler})$.</p>		Percent Urea Solution	Solubility at 37°C - mg percent	0.1%	80	1.0%	105	2.5%	110	5.0%	135	7.5%	140	10.0%	142
Percent Urea Solution	Solubility at 37°C - mg percent														
0.1%	80														
1.0%	105														
2.5%	110														
5.0%	135														
7.5%	140														
10.0%	142														
AUXILIARY INFORMATION															
METHOD/Apparatus/Procedure: Urea solns of varying concns from 0.1 to 10% were incubated at 37°C with an excess of sulfathiazole, shaken at intervals, and filtered through two thicknesses of Whatman No. 42 filter paper. After appropriate diln the free sulfonamide was detd by the method of Bratton and Marshall (1) using the Evelyn colorimeter and a No. 540 filter.	SOURCE AND PURITY OF MATERIALS: Nothing specified														
	ESTIMATED ERROR: Nothing specified.														
	REFERENCES:														

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Carbamic acid, ethyl ester (urethane); $C_3H_7NO_2$; [51-79-6] (3) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Weinstein, L.; McDonald, A. <i>Science</i> <u>1945</u> , <i>101</i> , 44-5.
VARIABLES: One temperature: 20°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p>Solubility of sulfathiazole in a 10% aqueous urethane solution at 20°C is 200 mg/100 cm³ urethane solution (7.83×10^{-3} mol dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Nothing specified	SOURCE AND PURITY OF MATERIALS: Nothing specified
	ESTIMATED ERROR: Nothing specified
	REFERENCES:

COMPONENTS:			ORIGINAL MEASUREMENTS:				
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0]			Higuchi, T.; Lach, J. L. J. Amer. Pharm. Assoc., Sci. Ed. 1954, 43, 349-54.				
(2) 1H-Purine-2,6-dione, 3,7-dihydro-1,3,7-trimethyl- (caffeine); C ₈ H ₁₀ N ₄ O ₂ ; [58-08-2]							
(3) Water; H ₂ O; [7732-18-5]							
VARIABLES:			PREPARED BY:				
Concentration of caffeine			R. Piekos				
EXPERIMENTAL VALUES:							
Total solubility of sulfathiazole in water containing caffeine at 30°C							
Caffeine		Sulfathiazole		Caffeine		Sulfathiazole	
10 ² mol dm ⁻³		10 ³ mol dm ⁻³ g dm ⁻³ a		10 ² mol dm ⁻³		10 ⁻³ mol dm ⁻³ g dm ⁻³ a	
0.000		2.27 0.58		10.485		5.01 1.28	
1.419		2.66 0.68		12.250		5.35 1.37	
1.514		2.63 0.67		13.342		5.45 1.39	
1.674		2.74 0.70		14.069		5.54 1.41	
3.457		3.21 0.82		14.074		5.46 1.39	
3.922		3.35 0.85		14.908		5.62 1.43	
3.944		3.27 0.83		15.089		5.69 1.45	
4.573		3.47 0.89		15.907		5.58 1.42	
5.468		3.68 0.94					
6.375		3.92 1.00					
7.951		4.27 1.09					
7.956		4.30 1.10					
9.017		4.59 1.17					
10.448		4.73 1.21					
a Calculated by compiler							
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE:				SOURCE AND PURITY OF MATERIALS:			
Sulfathiazole (75 mg) was placed in 125-ml glass-stoppered bottles together with varying but accurately weighed amts of caffeine and 50-ml portions of water. The bottles were placed in a mech shaker in a const temp bath and equilibrated for 8 h at 30°C. Aliquots of the supernatant liquid were analyzed for the sulfonamide by the method of Bratton and Marshall (1).				Recrystd sulfathiazole (U.S.P.), mp 201-2°C and recrystd caffeine (U.S.P.), mp 235-7°C were used. The water used was distilled.			
				ESTIMATED ERROR:			
				Nothing specified			
				REFERENCES:			
				1. Bratton, A. C.; Marshall, E. K., Jr. J. Biol. Chem. 1939, 128, 537.			

COMPONENTS:		ORIGINAL MEASUREMENTS:	
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0]		Neish, W.J.P. <i>Rec. trav. chim.</i> 1948, 67, 361-71.	
(2) 1H-Purine-2,6-dione, 3,7-dihydro-1,3,7-trimethyl- (caffeine); C ₈ H ₁₀ N ₄ O ₂ ; [58-08-2]			
(3) Water; H ₂ O; [7732-18-5]			
VARIABLES:		PREPARED BY:	
Concentration of caffeine		R. Piekos	
EXPERIMENTAL VALUES:			
Concentration of caffeine g/100 ml		Solubility of sulfathiazole at 37°C	
		γ /ml	10 ³ mol dm ⁻³ a
0.50		500	1.96
0.75		530	2.08
1.00		650	2.50
a Calculated by compiler			
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
A suspension of sulfathiazole in caffeine soln was kept for 5 h at 37°C and 1 h at room temp before filtration. Soly was detd by the Westfall's method (1) based on diazotization of the sulfonamide, coupling with Na 2-naphthol-3,6-disulfonate and comparing the color with that of a std soln in a Klett colorimeter.		Sulfathiazole: not specified Anhydrous caffeine was a good commercial product (source not specified). Distilled water was used.	
		ESTIMATED ERROR:	
		Nothing specified	
		REFERENCES:	
		1. Westfall, B. B. <i>J. Nat. Cancer Inst.</i> 1945, 6, 23.	

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) 2-Pyrrolidinone, 1-ethenyl-, polymers (PVP); $(C_6H_9NO)_x$; [9003-39-8] (3) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Rupperecht, H.; Ziller, K. H. <i>Pharmazie</i> <u>1981</u> , 36(4), 298.
VARIABLES: One temperature: 20°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of sulfathiazole in a suspension containing 2.0 mg PVP/100 ml at 20°C is 37.2 mg/100 ml (1.46×10^{-3} mol dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: To 50 ml of a suspension of 2.0 g of sulfathiazole, 1.0 mg of PVP was added, the mixt was placed in a thermostat and stirred with a magnetic stirrer. The concn of the solute was monitored continuously after filtration through a G3 or G4 fritted-glass filters by means of a Knauer differential refractometer or a Shimadzu 100-02 UV spectrophotometer. The cuvetts of the refractometer were thermostated. Variations of the refractive index or light absorption were recorded as a function of time with a Servogor 220 two-line recorder.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole: neither source nor purity was specified. PVP K30 was from BASF, Ludwigshafen. Its purity was not specified. Distilled water was used.
	ESTIMATED ERROR: Nothing specified REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl; (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) D-Glucose; $C_6H_{12}O_6$; [50-99-7] (3) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Becher, R.; Leya, S. <i>Experientia</i> <u>1946</u> , 2, 459-60.
VARIABLES: One temperature: 18-19°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of sulfathiazole in a 10% D-glucose solution at room temperature (18-19°C) is 57 mg% (2.2×10^{-3} mol dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: After standing for more than two days the soln of sulfathiazole was filtered and the sulfonamide was assayed in the filtrate colorimetrically by the method of Druey and Oesterheld (1).	SOURCE AND PURITY OF MATERIALS: Nothing specified
	ESTIMATED ERROR: Nothing specified
	REFERENCES: 1. Druey, J.; Oesterheld, G. <i>Helv. Chim. Acta</i> <u>1942</u> , 25, 753.

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (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., <i>Experientia</i> <u>1946</u> , 2, 459-60.
VARIABLES: One temperature: 18-19°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p>Solubility of sulfathiazole in a 2.5% pectin solution ([pectin] = $6.8 \times 10^{-2} \text{ mol kg}^{-1}$, compiler), of pH about 2.6, at room temperature (18-19°C) is 86 mg% ($3.4 \times 10^{-3} \text{ mol dm}^{-3}$, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: The soln was allowed to stand for more than 2 days at room temp. The soln was the filtered, and sulfathiazole assayed colorimetrically in the filtrate by the method of Druey and Oosterheld (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 a 1 mol dm^{-3} NaOH soln was used. The source and purity of sulfathiazole and water were not specified.
	ESTIMATED ERROR: Nothing specified
	REFERENCES: 1. Druey, J.; Oosterheld, G. <i>Helv. Chim. Acta</i> <u>1942</u> , 25, 753.

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (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 ; [7232-18-5]	ORIGINAL MEASUREMENTS: Khawam, M. N.; Yousef, R. T.; Czetsch-Lindenwald, H. <i>Sci. Pharm.</i> <u>1966</u> , 34, 209-13.														
VARIABLES: Concentration of PEG 400	PREPARED BY: R. Piekos														
EXPERIMENTAL VALUES: <div data-bbox="548 483 1152 1008"> <table border="1"> <caption>Data points estimated from the graph</caption> <thead> <tr> <th>% PEG 400</th> <th>Solubility at 35°C, g/100 g</th> </tr> </thead> <tbody> <tr><td>20</td><td>1</td></tr> <tr><td>40</td><td>2</td></tr> <tr><td>60</td><td>7</td></tr> <tr><td>80</td><td>21</td></tr> <tr><td>90</td><td>29</td></tr> <tr><td>100</td><td>25</td></tr> </tbody> </table> </div>		% PEG 400	Solubility at 35°C, g/100 g	20	1	40	2	60	7	80	21	90	29	100	25
% PEG 400	Solubility at 35°C, g/100 g														
20	1														
40	2														
60	7														
80	21														
90	29														
100	25														
AUXILIARY INFORMATION															
METHOD/APPARATUS/PROCEDURE: An earlier described method was employed (1) whereby a 100-ml conical flask contg a PEG 400 soln was placed in a drying cabinet at 35°C and an excess of sulfathiazole was added under stirring for 1 h. After 12 h the soln was filtered or decanted and the solute was assayed in the filtrate spectrophotometrically using a Unicam SP 500 spectrophotometer and 1-ml quartz cuvetts. Results were taken from a calibration graph.	SOURCE AND PURITY OF MATERIALS: Neither source nor purity of sulfathiazole and water were specified. PEG 400 was a product of Farbwerke Hoechst (purity not specified). ESTIMATED ERROR: Nothing specified REFERENCES: 1. Khawam, M. N.; Tawashi, R.; Czetsch-Lindenwald, H.v. <i>Sci. Pharm.</i> <u>1965</u> , 33, 90.														

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Poly(oxy-1,2-ethanediyl), α -hydro- ω -hydroxy- (PEG 4000); $(C_2H_4O)_nH_2O$; [25322-68-3] (3) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Khawam, M. N.; Yousef, R. T.; Czetsch-Lindenwald, H. <i>Sci. Pharm.</i> 1966, 34, 209-13.																
VARIABLES: Concentration of PEG 4000	PREPARED BY: R. Piekos																
EXPERIMENTAL VALUES: <div data-bbox="436 560 1039 1132" data-label="Figure"> <table border="1"> <caption>Data points from the solubility graph</caption> <thead> <tr> <th>% PEG 4000</th> <th>Solubility at 35°C, g/100 g</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.2</td></tr> <tr><td>5</td><td>0.3</td></tr> <tr><td>10</td><td>0.4</td></tr> <tr><td>15</td><td>0.6</td></tr> <tr><td>20</td><td>0.8</td></tr> <tr><td>25</td><td>1.0</td></tr> <tr><td>30</td><td>1.5</td></tr> </tbody> </table> </div>		% PEG 4000	Solubility at 35°C, g/100 g	0	0.2	5	0.3	10	0.4	15	0.6	20	0.8	25	1.0	30	1.5
% PEG 4000	Solubility at 35°C, g/100 g																
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AUXILIARY INFORMATION																	
METHOD/APPARATUS/PROCEDURE: An earlier described method was employed (1) whereby a 100-ml conical flask contg a PEG 4000 soln was placed in a drying cabinet at 35°C and an excess of sulfathiazole was added under stirring for 1 h. After 12 h the soln was filtered or decanted and the solute was assayed in the filtrate spectrophotometrically using a Unicam SP 500 spectrophotometer and 1-ml quartz cuvetts. Results were taken from a calibration curve.	SOURCE AND PURITY OF MATERIALS: Neither source nor purity of sulfathiazole and water were specified. PEG 4000 was a product of Farbwerke Hoechst (purity not specified).																
	ESTIMATED ERROR: Nothing specified																
	REFERENCES: 1. Khawam, M.N.: Tawashi, R.; Czetsch-Lindenwald, H. v. <i>Sci. Pharm.</i> 1965, 33, 90.																

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Sorbitan monolaurate, polyoxyethylene derivatives (Tween 20); [9005-64-5] (3) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Khawan, M. N.; Yousef, R. T.; Czetsch-Lindenwald, H. <i>Sci. Pharm.</i> <u>1966</u> , 34, 209-13.																
VARIABLES: Concnetration of Tween 20	PREPARED BY: R. Piekos																
EXPERIMENTAL VALUES: <div data-bbox="491 512 1190 1044" data-label="Figure"> <table border="1"> <caption>Data points from the solubility graph</caption> <thead> <tr> <th>% TWEEN 20</th> <th>Solubility at 35°C, g/100 g</th> </tr> </thead> <tbody> <tr><td>0</td><td>~0.5</td></tr> <tr><td>20</td><td>~1.0</td></tr> <tr><td>40</td><td>~1.5</td></tr> <tr><td>60</td><td>~6.0</td></tr> <tr><td>80</td><td>~12.0</td></tr> <tr><td>90</td><td>~19.0</td></tr> <tr><td>100</td><td>~14.0</td></tr> </tbody> </table> </div>		% TWEEN 20	Solubility at 35°C, g/100 g	0	~0.5	20	~1.0	40	~1.5	60	~6.0	80	~12.0	90	~19.0	100	~14.0
% TWEEN 20	Solubility at 35°C, g/100 g																
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AUXILIARY INFORMATION																	
METHOD/APPARATUS/PROCEDURE: An earlier described method was employed (1) whereby a 100-ml conical flask contg a Tween 20 soln was placed in a drying cabinet at 35°C and an excess of sulfathiazole was added under stirring for 1 h. After 12 h the soln was filtered or decanted and the solute was assayed in the filtrate spectrophotometrically using a Unicam SP 500 spectrophotometer and 1-ml quartz cuvetts. Results were taken from a calibration graph.	SOURCE AND PURITY OF MATERIALS: Neither source nor purity of sulfathiazole and water were specified. Tween 20 was supplied by Atlas-Goldschmidt A.G., Essen (purity not specified). ESTIMATED ERROR: Nothing specified																
	REFERENCES: 1. Khawam, M.N.; Tawashi, R.; Czetsch-Lindenwald, H. v. <i>Sci. Pharm.</i> <u>1965</u> , 33, 90.																

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Sorbitan monolaurate, polyoxyethylene derivatives (Tween 20); [9005-64-5] (3) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Gusyakov, V.P.; Likholt', N. M.; Kutna, I.M.; <i>Farm. Zh. (Kiev)</i> <u>1967</u> , 22(3), 34-9.
VARIABLES: One temperature: 20°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: $S/S_0 = 2.0 \text{ at } 20^\circ$ <p>where S is the solubility of sulfathiazole in a 2% by weight Tween 20 solution, and</p> <p>S_0 is the solubility of sulfathiazole in water (0.043 g/100 ml).</p> <p>Hence $S = 0.086 \text{ g/100 ml}$ ($3.4 \times 10^{-3} \text{ mol dm}^{-3}$), compiler.</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: An excess of sulfathiazole in a 2% by wt aq Tween 20 soln was equilibrated for 24 h in an ampul immersed in a water thermostat. Aliquots of the satd soln were withdrawn through a filter and the sulfathiazole content was assayed in the filtrate photometrically.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole conformed to the requirements of the State Pharmacopeia IX. Tween 20 was a product of Gee Lawson, England. Purity of the water was not specified.
	ESTIMATED ERROR: Soly: not specified. Temp: $\pm 0.1^\circ\text{C}$ (authors).
	REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Sorbitan monopalmitate, polyoxyethylene derivatives (Tween 40); [9005-66-7] (3) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Gusyakov, V. P.; Likholt'ot, N. M. Kutna, I.M. <i>Farm. Zh. (Kiev)</i> <u>1967</u> , 22(3), 34-9.
VARIABLES: One temperature: 20°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: $S/S_0 = 2.0 \text{ at } 20^\circ\text{C}$ <p>where S is the solubility of sulfathiazole in a 2% weight Tween 40 solution in water, and</p> <p>S_0 is the solubility of sulfathiazole in water (0.043 g/100 ml).</p> <p>Hence $S = 0.086 \text{ g/100 ml}$ ($3.4 \times 10^{-3} \text{ mol dm}^{-3}$), compiler.</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: An excess of sulfathiazole in a 2% by wt aq Tween 40 soln was equilibrated for 24 h in an ampul immersed in a water thermostat. Aliquots of the satd soln were withdrawn through a filter and the sulfathiazole content was assayed in the filtrate photo-metrically.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole conformed to the requirements of the State Pharmacopeia IX. Tween 40 was a product of Gee Lawson, England. Purity of the water was not specified. ESTIMATED ERROR: Soly: not specified. Temp: $\pm 0.1^\circ\text{C}$ (authors). REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2 thaizolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Sorbitan monooleate, polyoxyethylene derivatives (Tween 80) [9005-65-6] (3) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Gusyakov, V. P.; Likholt'ot, N. M.; Kutna, I.M. <i>Farm. Zh. (Kiev)</i> <u>1967</u> , 22(3), 34-9.
VARIABLES: One temperature: 20°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: $S/S_0 = 2.0 \text{ at } 20^\circ\text{C}$ <p>where S is the solubility of sulfathiazole in a 2% by weight aqueous Tween 80 solution, and</p> <p>S_0 is the solubility of sulfathiazole in water (0.043 g/100 ml).</p> <p>Hence $S = 0.086 \text{ g/100 ml}$ ($3.4 \times 10^{-3} \text{ mol dm}^{-3}$), compiler.</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: An excess of sulfathiazole 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 sulfathiazole content was assayed in the filtrate photometrically.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole conformed to the requirements of the State Pharmacopeia IX. Tween 80 was a product of Gee Lawson, England. Purity of the water was not specified.
	ESTIMATED ERROR: Soly: not specified. Temp: $\pm 0.1^\circ\text{C}$ (authors).
	REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Ethanol; C_2H_6O ; [64-17-5]	ORIGINAL MEASUREMENTS: Lott, W. A.; Bergeim, F. H. <i>J. Am. Chem. Soc.</i> <u>1939</u> , <i>61</i> , 3593-4.
VARIABLES: One temperature: 26°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of sulfathiazole in ethanol at 26°C is 525 mg/100 cm³ (2.06 x 10⁻² mol dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Nothing specified.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole, mp 197-7.5°C (uncor) and 202.0-2.5°C (cor) was prepd by the authors. Purity of the ethanol was not specified.
	ESTIMATED ERROR: Nothing specified.
	REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) 2-Propanol; C_3H_8O ; [67-63-0]	ORIGINAL MEASUREMENTS: Burlage, H. M. <i>J. Am. Pharm. Assoc., Sci. Ed.</i> <u>1948</u> , 37, 345.
VARIABLES: One temperature: 25°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of sulfathiazole in 2-propanol at 25°C is 0.5750 g/100 cm³ solution (2.252 x 10⁻² mol dm⁻³, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: <p>Satd solns of sulfathiazole in 2-propanol were prep'd at 25°C and definite vols of the solns were measured into tared dishes by means of standard pipets. The alcohol was allowed to evap at room temp and the residue was dried at 105°C. In the case of losses due to apparent decompn, the residue was dried in a desiccator (1).</p>	SOURCE AND PURITY OF MATERIALS: <p>The sulfathiazole was manuf'd by Merck and was of the U.S.P. purity. The source and purity of 2-propanol was not specified.</p>
	ESTIMATED ERROR: <p>Nothing specified.</p>
	REFERENCES: <p>1. Burlage, H. M. <i>J. Am. Pharm. Assoc., Sci. Ed.</i> <u>1947</u>, 36(1), 16.</p>

COMPONENTS:			ORIGINAL MEASUREMENTS:	
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0]			Kuhnert-Brandst�tter, M.; Martinek, A. Microchim. Technoanal. Acta 1956, 909-19.	
(2) 2-Propanol; C ₃ H ₈ O; [67-63-0]				
VARIABLES:			PREPARED BY:	
Temperature			R. Piekos	
EXPERIMENTAL VALUES:				
Saturation solubility ^a				
t/�C	Crystalline form I		Crystalline form II	
	g/100 g solution	10 ² mol kg ⁻¹ solution ^b	g/100 g solution	10 ² mol kg ⁻¹ solution ^b
30.5	0.400	1.567	-	-
31.0	-	-	0.220	0.862
40.5	0.500	1.958	0.310	1.214
50.5	0.660	2.585	0.510	2.000
59.5	0.890	3.486	-	-
60.0	-	-	0.735	2.879
61.0	-	-	0.770	3.016
65.0	-	-	0.880	3.447
69.0	1.215	4.759	-	-
70.0	1.260	4.935	1.085	4.250
^a Numerical data received from the authors.				
^b Calculated by compiler.				
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:	
Sulfathiazole and 2-propanol were placed in a polyethylene vessel, agitated for 3 h, filtered, and the sulfonamide was assayed in the filtrate gravimetrically. The solid phase was examd thermomicroscopically for identity of the cryst form.			A comm available form II of sulfathiazole was used. Form I was obtained by keeping the comm reagent at 170�C for 2 h. The source and purity of 2-propanol was not specified.	
			ESTIMATED ERROR:	
			Soly: not specified. Temp: �0.5�C (authors).	
			REFERENCES:	

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Ethanol, 2-ethoxy-; $C_4H_{10}O_2$; [110-80-5]	ORIGINAL MEASUREMENTS: Sunwoo, C.; Eisen, H. <i>J. Pharm. Sci.</i> <u>1971</u> , <i>60</i> , 238-44.
VARIABLES: One temperature: 25°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p>The mole fraction solubility of crystalline form II of sulfathiazole in 2-ethoxyethanol at 25°C is 0.0224 (6.09 g/100 g solution, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Soly was detd by the method reported by Restaino and Martin (1). Sulfathiazole was assayed spectrophotometrically on a Coleman-Hitachi 124 double-beam spectrophotometer at 280 nm after dilg the sample with 95% EtOH or water.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole (American Cyanamid Co., Pearl River, N.Y.) was recrystd from super-satd soln of warm acetone to give cryst form II. Industrial grade 2-ethoxyethanol (Cellosolve solvent, Union Carbide Corp., New York, N.Y.) was used.
	ESTIMATED ERROR: Temp: $\pm 1.0^\circ\text{C}$ (authors). Soly: the mean of 3 runs was given (authors).
	REFERENCES: 1. Restaino, F. A.; Martin, A. N. <i>J. Pharm. Sci.</i> <u>1964</u> , <i>53</i> , 636.

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) 2-Butanol; $C_4H_{10}O$; [78-92-2] (3) Ethanol; C_2H_6O ; [64-17-5]	ORIGINAL MEASUREMENTS: Mehta, S. C.; Bernardo, P. D.; Higuchi, W. I.; Simonelli, A. P. <i>J. Pharm. Sci.</i> <u>1970</u> , <i>59</i> (5), 638-44.
VARIABLES: One temperature: 30°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of sulfathiazole in a 60% v/v mixture of ethanol in 2-butanol, at 30°C, is 0.555 g/100 g (2.17×10^{-2} mol kg⁻¹, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: An excess of the amt of the recrystd sulfathiazole needed to produce a satd soln was placed in a volumetric flask with the solvent and agitated in a water bath at 30°C. Duplicate samples were withdrawn at 12-24-h intervals, filtered through a 0.45-μ Millipore filter, and analyzed spectrophotometrically.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole (source not specified) was purified by crystallization. The source and purity of the remaining materials was not specified.
	ESTIMATED ERROR: Nothing specified.
	REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Methane, trichloro- (chloroform); $CHCl_3$; [67-66-3]	ORIGINAL MEASUREMENTS: Riess, W. <i>Intern. Congr. Chemotherapy, Proc., 3rd, Stuttgart 1963, 1, 627-32.</i>			
VARIABLES: One temperature: 20°C	PREPARED BY: R. Piekos			
EXPERIMENTAL VALUES: <p>Solubility of sulfathiazole in chloroform at 20°C is 15 mg%</p> <p>(5.9×10^{-4} mol dm⁻³ solution, compiler).</p>				
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE: Nothing specified.	<table border="1"> <tr> <td data-bbox="676 1255 1223 1578"> SOURCE AND PURITY OF MATERIALS: Nothing specified. </td> </tr> <tr> <td data-bbox="676 1578 1223 1709"> ESTIMATED ERROR: Nothing specified. </td> </tr> <tr> <td data-bbox="676 1709 1223 1913"> REFERENCES: </td> </tr> </table>	SOURCE AND PURITY OF MATERIALS: Nothing specified.	ESTIMATED ERROR: Nothing specified.	REFERENCES:
SOURCE AND PURITY OF MATERIALS: Nothing specified.				
ESTIMATED ERROR: Nothing specified.				
REFERENCES: 				

COMPONENTS:					ORIGINAL MEASUREMENTS:		
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0]					Gutierrez, F. H. Anales fis. quim. (Madrid) 1945, 41, 537-60.		
(2) 2-Propanone (acetone); C ₃ H ₆ O; [67-64-1]							
VARIABLES:					PREPARED BY:		
Temperature					R. Piekos		
EXPERIMENTAL VALUES:							
t/°C	G ^a	E ^b	X _g /l ^c	mol/l ^d acetone	mmol/mol acetone	1:X _g ^e	1 + X _{cc} ^f
0	0.994	0.984	8.097	31.7	2.26	100.60	123.50
5	1.247	1.212	10.086	39.5	2.84	80.19	99.15
10	1.506	1.484	12.093	47.4	3.43	64.41	82.72
15	1.728	1.699	13.774	53.9	3.93	57.87	72.60
20	2.025	1.985	16.022	62.7	4.61	49.38	62.41
25	2.349	2.295	18.484	72.4	5.34	42.58	54.10
30	2.653	2.584	20.675	80.9	6.03	37.69	48.37
35	3.000	2.913	23.199	90.8	6.82	33.33	43.11
40	3.380	3.269	25.938	101.6	7.70	29.58	38.71
45	3.704	3.571	28.200	110.4	8.43	26.99	35.46
50	4.133	3.969	31.225	122.3	9.40	24.19	32.02
$a_G = \frac{p}{P - p}$, where p and P are the weights of solute and solution, resp.							
$b_E = \frac{G}{G + 100}$; c _g /l acetone; ^d should be mmol/l acetone (compiler);							
^e g of acetone required to dissolved 1 g of solute; ^f volume (cm ³) of acetone required to dissolve 1 g of solute.							
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE:					SOURCE AND PURITY OF MATERIALS:		
A special all-glass app was constructed enabling the prepn of satd solns, agitation by bubbling a stream of acetone-satd N, filtration and distn off the solvent without contact with air. Two exchangeable dissoln vessels of 15 and 8 cm ³ working capacity were used depending on the soly of solute. The app was immersed in a thermostat. The vols of acetone used were 15 or 5 cm ³ , and the equilibration time was 2-2.5 h. The satd solns were filtered, weighed, the solvent was distd off, the residues were dried at 105°C, weighed and examd for the presence of solvated acetone.					The source of the materials was not specified. Pure, anhyd acetone was used. The absence of impurities and water was confirmed by procedures of the German Pharmacopeia VI and Spanish Pharmacopeia VIII. The purity of sulfathiazole was not specified.		
					ESTIMATED ERROR:		
					Soly: measurements were repeated until 2 values not differing in the second decimal were obtained (author). Temp: ±0.1°C (author).		
					REFERENCES:		

[illegible]

COMPONENTS:		ORIGINAL MEASUREMENTS:													
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0]		Wahlgren, S.; <i>Svensk farm. tidskr.</i> 1962, 66, 585-91.													
(2) Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy-(PEG 400); (C ₂ H ₄ O) _n H ₂ O; [25322-68-3]															
VARIABLES:		PREPARED BY:													
Temperature		R. Piekos													
EXPERIMENTAL VALUES:															
<table><tr><td></td><td colspan="2">Solubility in PEG 400</td></tr><tr><td>t/°C</td><td>weight %</td><td>mol kg⁻¹ a</td></tr><tr><td>20</td><td>22</td><td>1.1</td></tr><tr><td>60</td><td>22</td><td>1.1</td></tr></table>					Solubility in PEG 400		t/°C	weight %	mol kg ⁻¹ a	20	22	1.1	60	22	1.1
	Solubility in PEG 400														
t/°C	weight %	mol kg ⁻¹ a													
20	22	1.1													
60	22	1.1													
a Calculated by compiler															
AUXILIARY INFORMATION															
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:													
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 a least 4 h.		The source and purity of sulfathiazole was not specified. PEG 400: pH 4.7 (1.00 g in 20.0 g of water); ash content 0.030%; free acid: 0.30 cm ³ of 0.1N NaOH 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-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Poly(oxy-1,2-ethanediyl), α -hydro- ω -hydroxy- (PEG 400); $(C_2H_4O)_nH_2O$; [25322-68-3]	ORIGINAL MEASUREMENTS: Gusyakov, V.P.; Likholt'ot, N.M.; Kutna, I.M. <i>Farm. Zh. (Kiev)</i> <u>1968</u> , 23(6), 56-61.
VARIABLES: One temperature: 21-25°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p style="text-align: center;">Solubility of sulfathiazole in α-hydro- ω-hydroxypoly(oxy-1,2-ethanediyl) 400 at room temperature (21-25°C) is 28% by weight (1.5 mol kg⁻¹ PEG 400, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Small quantities (2-4 mg) of sulfathiazole were added to a known quantity of PEG 400 under stirring until satn was attained.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole: neither source nor purity was specified. PEG 400: source not specified; sp. gr. 1.127 g cm ⁻³ ; temp of solidification approx 6°C; refractive index 1.466 (temp not indicated).
	ESTIMATED ERROR: Nothing specified.
	REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Cottonseed oil	ORIGINAL MEASUREMENTS: Whitworth, C. W.; Becker, C. H. <i>J. Pharm. Sci.</i> 1965, 54(4), 569-73.
VARIABLES: One temperature: 37.5°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p>Solubility of sulfathiazole in cottonseed oil at 37.5°C is 0.863 mg%</p> <p>(3.38×10^{-5} mol dm⁻³ solution, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: A satd soln of sulfathiazole in cottonseed oil was made and filtered carefully at a const temp to remove suspended particles. A portion of the soln was shaken for 4 h with 100 ml of EtOH. The alcoholic layer was centrifuged for 30 min. Aliquot portions of the alcoholic soln were allowed to evap to dryness, a trichloroacetic acid soln added, and subsequently the Marshall reagents. From the intensity of the color developed it was possible to det the amt of the drug extd by the process utilized. A Klett-Summerson colorimeter with a No 54 filter was employed to det the color intensity, which was compared to that of standard solns.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole (N.F. grade) was from Eli Lilly and Co. Neither source nor purity of the cottonseed oil was specified. ESTIMATED ERROR: Soly: not specified Temp: ±1°C (authors) REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Sorbitan, (Z)-9-octadecenoate (2:3) (Arlacel 83); [8007-43-0] (3) White petrolatum (liquid petrolatum)	ORIGINAL MEASUREMENTS: Whitworth, C.W.; Becker, C. H. <i>J. Pharm. Sci.</i> <u>1965</u> , <i>54</i> (4), 569-73.															
VARIABLES: Concentration of Arlacel 83	PREPARED BY: R. Piekos															
EXPERIMENTAL VALUES: <table border="1" data-bbox="270 662 1129 954"> <thead> <tr> <th data-bbox="295 662 631 690">Concentration of Arlacel 83</th> <th colspan="2" data-bbox="823 662 1058 690">Solubility at 37.5°C</th> </tr> <tr> <th data-bbox="417 711 431 739">%</th> <th data-bbox="746 711 792 739">mg%</th> <th data-bbox="851 703 1069 739">$10^5 \text{ mol dm}^{-3} \text{ soln}^a$</th> </tr> </thead> <tbody> <tr> <td data-bbox="417 784 431 805">1</td> <td data-bbox="736 784 802 805">2.178</td> <td data-bbox="943 784 1005 805">8.531</td> </tr> <tr> <td data-bbox="417 833 431 854">5</td> <td data-bbox="736 833 802 854">2.272</td> <td data-bbox="943 833 1005 854">8.899</td> </tr> <tr> <td data-bbox="403 883 445 903">10</td> <td data-bbox="722 883 816 903">17.136</td> <td data-bbox="929 883 1019 903">67.119</td> </tr> </tbody> </table> <p data-bbox="344 1017 638 1046">^a Calculated by compiler</p>		Concentration of Arlacel 83	Solubility at 37.5°C		%	mg%	$10^5 \text{ mol dm}^{-3} \text{ soln}^a$	1	2.178	8.531	5	2.272	8.899	10	17.136	67.119
Concentration of Arlacel 83	Solubility at 37.5°C															
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10	17.136	67.119														
AUXILIARY INFORMATION																
METHOD/APPARATUS/PROCEDURE: A satd soln of sulfathiazole in the solvent was made and filtered carefully at a const temp to remove all suspended particles. A 5-ml portion of the soln was shaken for 4 h with 100 ml of EtOH. The alcoholic layer was centrifuged for 30 min. Aliquot portions of the alcoholic solns were allowed to evap to dryness, a trichloroacetic acid soln was added, and subsequently the Marshall reagents. From the intensity of the color developed it was possible to det the amt of the drug extd by the process utilized. A Klett-Summerson colorimeter with a No 54 filter was employed to det the color intensity, which was compared to that of standard solns.	SOURCE AND PURITY OF MATERIALS: Sulfathiazole (N.F. grade) was from Eli Lilly and Co. Arlacel 83 (Lot No 129) was from Atlas Powder Co. (purity not specified). White petrolatum (liquid petrolatum) (U.S.P. grade) was from Fisher Scientific Co. ESTIMATED ERROR: Soly: not specified Temp: $\pm 1^\circ\text{C}$ (authors) REFERENCES:															

COMPONENTS:		ORIGINAL MEASUREMENTS:															
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); C ₉ H ₉ N ₃ O ₂ S ₂ ; [72-14-0]		Whitworth, C. W.; Becker, C. H. J. Pharm. Sci. 1965, 54(4), 569-73.															
(2) Cottonseed oil																	
(3) Sorbitan, (Z)-9-octadecenoate (2:3) (Arlacel 83); [8007-43-0]																	
VARIABLES:		PREPARED BY:															
Concentration of Arlacel 83		R. Piekos															
EXPERIMENTAL VALUES:																	
<table><tr><td rowspan="2">Concentration of Arlacel 83 %</td><td colspan="2">Solubility at 37.5°C</td></tr><tr><td>mg%</td><td>10⁵ mol dm⁻³ soln^a</td></tr><tr><td>1</td><td>0.798</td><td>3.120</td></tr><tr><td>5</td><td>8.098</td><td>31.710</td></tr><tr><td>10</td><td>19.953</td><td>78.152</td></tr></table>				Concentration of Arlacel 83 %	Solubility at 37.5°C		mg%	10 ⁵ mol dm ⁻³ soln ^a	1	0.798	3.120	5	8.098	31.710	10	19.953	78.152
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AUXILIARY INFORMATION																	
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		ESTIMATED ERROR:															
		Soly: not specified Temp: ±1°C (authors)															
		REFERENCES:															

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Hydrochloric acid; HCl; [7647-01-0] (3) Sodium chloride; NaCl; [7647-14-5] (4) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Miseta, M.; Kedvessy, G.; Selmeczi, B. <i>Pharmazie</i> <u>1983</u> , <i>38</i> (5), 326-7.
VARIABLES: One temperature: 20°	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: <p>Solubility of sulfathiazole in a simulated gastric juice (composition: 2.0 g NaCl, 25.0 g 10% HCl, and distilled water up to 1000 cm³; pH 1.2), at 20°C, is 1 part sulfathiazole in 240 parts of the gastric juice (1.6×10^{-2} mol kg⁻¹ gastric juice - compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Soly was detd by the Pharmacopeia Hungarica V method. The equilibration time was 2 days with occasional shaking (personal communication). The concn of the solute in the satd soln was detd spectrophotometrically at 282 nm using a Spektromom 195 spectrophotometer.	SOURCE AND PURITY OF MATERIALS: The source and purity of sulfathiazole was not specified. The simulated gastric juice was prepd by the authors. The source and purity of the components was not specified. Distilled water was used.
	ESTIMATED ERROR: Soly: not specified Temp: $\pm 2^\circ C$ (personal communication).
	REFERENCES:

COMPONENTS: (1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0] (2) Cellulose, ethers, 2-hydroxypropyl methyl ether (Methocel 65 HG) [9004-65-3] (3) Hydrochloric acid; HCl; [7647-01-0] (4) Sodium chloride; NaCl; [7647-14-5] (5) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Miseta, M.; Kedvessy, G.; Selmeczi, B. <i>Pharmazie</i> <u>1983</u> , 38(5), 326-7.
VARIABLES: One temperature: 20°C	PREPARED BY: R. Piekos
EXPERIMENTAL VALUES: Solubility of sulfathiazole in a simulated gastric juice (composition: 2.0 g NaCl, 25.0 g 10% HCl, and distilled water up to 1000 cm ³ ; pH 1.2), containing 0.5% Methocel 65 HG, at 20°C, is 1 part sulfathiazole in 160 parts of the simulated gastric juice containing 0.5% Methocel 65 HG (2.4×10^{-2} mol kg ⁻¹ simulated gastric juice containing 0.5% Methocel 65 HG - compiler).	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Soly was detd by the Pharmacopeia Hungarica V method. The equilibration time was 2 days with occasional shaking (personal communication). The concn of the solute in the satd soln was detd spectrophotometrically at 282 nm using a Spektromom 195 spectrophotometer.	SOURCE AND PURITY OF MATERIALS: The source and purity of sulfathiazole was not specified. The simulated gastric juice contg 0.5% Methocel 65 HG was prepd by the authors. The source and purity of the components was not specified. Distilled water was used.
	ESTIMATED ERROR: Soly: not specified Temp: $\pm 2^\circ\text{C}$ (personal communication)
	REFERENCES:

COMPONENTS:			ORIGINAL MEASUREMENTS:	
(1) Benzenesulfonamide, 4-amino-N-2-thiazolyl- (sulfathiazole); $C_9H_9N_3O_2S_2$; [72-14-0]			Badawi, A. A.; El-Sayed, A. A. <i>J. Pharm. Sci.</i> <u>1980</u> , <i>69</i> (5), 492-7.	
(2) Benzenesulfonamide, 4-amino-N-2-thiazolyl- -2-pyrrolidinone, 1-ethenyl-, homopolymer, complex; $C_9H_9N_3O_2S_2 \cdot (C_6H_9NO)_x$; [*]			PREPARED BY: R. Piekos	
(3) 2-Pyrrolidinone, 1-ethenyl-, homopolymer (povidone); $(C_6H_9NO)_x$; [9003-39-8]				
(4) Water; H_2O ; [7732-18-5]				
VARIABLES: Concentration of povidone				
EXPERIMENTAL VALUES:				
Amount of povidone %	Amount of complexed sulfathiazole %	Amount of complex %	Solubility at 25°C	
			expressed as mg sulfathiazole per ml of water	10^2 mol dm^{-3} water ^a
20	11.48	31.48	2.45	0.960
40	22.96	62.96	5.02	1.966
60	34.44	84.44 ^b	7.60	2.977
^a Calculated by compiler				
^b Should be 94.44 - compiler				
[*] This complex is not registrable by the conventions of the CAS Registry System (information from Knox Hazelton, Exptl. Services of Ca.; Jan. 12, 1981) - compiler.				
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE: Mixts contg a weighed excess of sulfathiazole and a povidone-sulfathiazole coacervated system were placed in 25-ml ampuls contg 10 ml of water. The ampuls were sealed and placed on a rotating shaft (42 rpm) immersed in a water bath at 25±1°C. Duplicate samples were withdrawn, filtered, and assayed spectrophotometrically at 283 nm.			SOURCE AND PURITY OF MATERIALS: Sulfathiazole was of the BP 1963 purity. The povidone-sulfathiazole coacervated systems were prep'd by the authors. Povidone (mol wt 25,000) was manuf'd by BASF (West Germany). Purity of the water was not specified.	
			ESTIMATED ERROR: Soly: not specified. Temp: ±1°C (authors).	
			REFERENCES:	