

ORGANIC CHEMICALS.

Christensen, E. V., and Jespersen, J. C.

Notes on 2,4-dinitrophenol

Arch. Pharm. og Chem., 41 (1934), 310

Ciogolea, George

Detection of carbon tetrachloride in chloroform

J. pharm. chim., 19 (1934), 377

Gailliot, M.

The composition and solubility of acriflavine and some other derivatives of 2,8-diamino-acridine used in therapeutics

Quart. J. Pharm. & Pharmacol., 7 (1934), 63

Griffith, Ivor

The pharmaceutical applications of sulfonated lauryl alcohol and kindred products

Am. J. Pharm., 106 (1934), 176

Gubelmann, I., and Elley, H. W.

American production of synthetic camphor from turpentine

Ind. Eng. Chem., 26 (1934), 589

Herrmann, P.

Contribution to the knowledge of resins. III.

Action of ozone on α - and β -amyrin*Arch. Pharm.*, 272 (1934), 607

Kuwada and Matsukawa

Chemical researches on the saponins. VIII and IX

J. Pharm. Soc. Japan, No. 625 (1934), 32, 35

Raymond-Hamet

Color reaction of certain phenylamines

Bull. sci. pharmacol., 41 (1934), 224

Redgrove, H. Stanley

Triethanolamine

Chem. & Drug., 70 (1934), 475

Tabern, D. L., and Volwiler, E. H.

Hypnotics containing the *l*-ethylpropyl group; syntheses with higher esters of *p*-toluene-sulfonic acid*J. Am. Chem. Soc.*, 56 (1934), 1139

Wagenaar, M.

Contribution to the microchemistry of quinine ethylcarbonate

Pharm. Weekblad., 71 (1934), 435

Williams, Robert R., et al.

Larger yields of crystalline antineuritic vitamin

J. Am. Chem. Soc., 56 (1934), 1187

THE SOLUBILITY OF POTASSIUM CHLORIDE IN AQUEOUS POTASSIUM IODIDE SOLUTIONS.*

BY S. E. HARRIS AND W. G. CHRISTIANSEN.

In connection with other studies in progress in this laboratory, it became necessary to determine the effect of varying amounts of potassium chloride on the solubility of potassium iodide in water. The determinations were carried out at 20°, 30° and 40° C., and the results are shown graphically in Fig. 1 and in detail in the experimental part. As was expected, the addition of successively larger quantities of KCl to saturated KI solutions depressed the solubility of each until an equilibrium was reached.

In addition the solubility of KCl in terms of grams of salt per 100 cc. of solution was determined for the same temperatures.

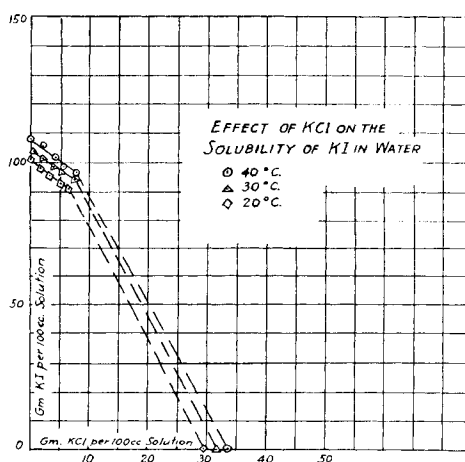


Fig. 1.

* Section on Practical Pharmacy and Dispensing, A. PH. A., Madison meeting, 1933.

EXPERIMENTAL.

The determinations were carried out in the following manner: A saturated solution of pure potassium iodide was prepared at 50° C. and cooled to the desired temperature. The solution was well stirred to prevent supersaturation and the separated salt allowed to settle. Fifty cc. of the clear supernatant liquor was pipetted into a large test-tube by means of a pipette calibrated at the particular temperature and the desired quantity of KCl ground to 80-mesh added. The tube was sealed by a blast lamp and attached to a shaking device in a thermostat maintained at the desired temperature to within $\pm 0.05^\circ$ C. Shaking was continued for 24 hours, after which the undissolved salt was allowed to settle. Ten-cc. portions were then removed by a calibrated pipette and diluted to 1000 cc. Total halogen was determined in this dilution by Volhard's method and potassium iodide by KIO_3 solution. From these values the composition of the solution in terms of grams of KCl and KI per 100 cc. of solution was calculated.

TABLE I.—KCl-KI-WATER SYSTEM AT 20° C.

Gm. KCl Added per 100 Cc. KI Solution.	Cc. KIO_3 Used.	Cc. N/10 AgNO_3 Equivalent to KI from Col. 2.	Gm. KI/100 Cc. Solution.	Cc. N/10 AgNO_3 Equivalent to Total Halogen.	Gm. KCl/100 Cc. Solution.
0	30.20	15.10	100.3	15.06	..
...	30.20	...	...	...	..
2	29.35	14.70	97.4	15.31	1.82
...	29.35	...	...	...	..
4	28.70	14.35	95.3	15.51	3.47
...	28.70	...	...	...	..
6	27.80	13.90	92.3	15.59	5.05
...	27.85	...	...	...	..
8*	27.25	13.63	90.5	15.84	6.60
10	27.35	13.66	90.8	15.92	6.74
15	27.35	13.66	90.8	15.84	6.50
20	27.30	13.63	90.6	15.92	6.81
25	27.30	13.63	90.6	15.92	6.81
Average	...	...	90.7	...	6.69

TABLE II.—KCl-KI-WATER SYSTEM AT 30° C.

Gm. KCl Added per 100 Cc. KI Solution.	Cc. KIO_3 Used.	Cc. N/10 AgNO_3 Equivalent to KI from Col. 2.	Gm. KI/100 Cc. Solution.	Cc. N/10 AgNO_3 Equivalent to Total Halogen.	Gm. KCl/100 Cc. Solution.
0	31.10	15.54	103.2	15.80	0.78
...	31.15	...	...	...	..
2	30.30	15.12	100.4	15.85	2.03
...	30.30	...	...	...	..
4	29.50	14.75	98.0	16.21	4.21
...	29.50	...	...	16.16	..
6	29.20	14.60	96.8	16.46	5.53
...	29.20	...	...	16.61	..
8*	28.25	14.12	93.6	16.77	7.92
...	28.20	...	...	...	..
10	28.10	14.00	92.8	16.64	7.85
...	28.30	...	...	...	..
15	28.00	14.00	92.8	16.59	7.74
...	28.00	...	...	...	..
20	27.95	14.00	92.8	16.59	7.74
...	27.95	...	...	...	..
25	27.85	13.92	92.4	16.77	8.52
...	27.85	...	...	...	..
30	27.90	14.00	92.8	16.64	7.29
...	27.90	...	...	...	..
Average	...	...	92.9	...	7.84

TABLE III.—KCl-KI-WATER SYSTEM AT 40° C.

Gm. KCl Added per 100 Cc. KI Solution.	Cc. KIO ₃ Used.	Cc. N/10 AgNO ₃ Equivalent to KI from Col. 2.	Gm. KI/100 Cc. Solution.	Cc. N/10 AgNO ₃ Equivalent to Total Halogen.	Gm. KCl/100 Cc. Solution.
0	32.20	16.10	107.2	16.13	..
...	32.20	...	...	...	..
2	31.40	15.72	104.5	16.40	2.04
...	31.40	...	...	...	..
4	30.40	15.20	101.2	16.67	4.39
...	30.35	...	...	...	..
6	29.40	14.70	97.9	16.55	5.55
...	29.40	...	...	...	..
8*	28.85	14.44	96.2	16.94	7.49
10	28.75	14.38	95.7	17.18	8.39
15	28.80	14.38	95.9	16.88	7.49
20	28.80	14.38	95.9	16.94	7.67
25	28.80	14.38	95.9	17.09	8.12
30	28.7	14.28	95.5	17.08	7.88
Average	...	...	95.9	...	7.86

* These data show that with 8 or more grams of KCl per 100 cc. of the KI solution the system is in equilibrium with a solid phase containing both KCl and KI.

TABLE IV.—SOLUBILITY OF KCl.

Temperature, ° C.	Gm. KCl/100 Cc. Solution.
20	29.74
30	31.88
40	33.98

RESEARCH DEPARTMENT OF THE CHEMICAL
AND PHARMACEUTICAL LABORATORIES,
E. R. SQUIBB AND SONS,
BROOKLYN, N. Y.

A STUDY OF FOWLER'S SOLUTION.

BY CHARLES SCHWARTZ, JR.*

The fact that Fowler's Solution is subject to deterioration on standing is well known. Its alkalinity also has proven to be objectionable in the compounding of many medicines. It seems, then, that if the U. S. P. formula could be modified so that the alkalinity would be reduced without causing more rapid decomposition, a more desirable product would result. Since moldy growths often develop in the Solution, the addition of a suitable preservative would also serve to improve it.

The formula of Fowler's Solution as given in the U. S. P. X is as follows:

Arsenic Trioxide	10 Gm.
Potassium Bicarbonate	20 Gm.
Compound Tincture of Lavender	30 cc.
Distilled Water, a sufficient quantity to make	_____
	1000 cc.

* Teaching Fellow, College of Pharmacy, University of Washington, Seattle.