

measured one ounce, one six drams, and the remaining one, four drachms. Four did not state the alcoholic content, one claimed 83 per cent, and the remaining three read 94.9 per cent.

Each tincture was assayed for iodine, potassium iodide and alcohol, by the U. S. P. X methods. Though these tinctures were bought in the summer of 1925 and should comply with the Ninth Revision, it should be said that these two revisions are essentially identical as to formula and methods of analysis. In addition to the pharmacopœial method for potassium iodide, the residue was dissolved in water and subjected to a residual titration with AgNO_3 V. S. and KCNS V. S. A freshly prepared tincture of iodine U. S. P. X was made and assayed with the above.

TINCTURE OF IODINE ANALYSES.

Sample number.	Iodine, grams per 100 cc.	Potassium iodide, grams per 100 cc.		Alcohol.	
		Weighing.	Titration.	Found.	Per cent stated on label.
1	6.880	4.816	4.716	86.90	..
2	6.670	5.052	4.896	81.00	..
3	7.100	5.056	4.896	85.35	..
4	6.340	4.880	4.776	83.00	83.0
5	7.520	5.260	5.188	80.50	94.9
6	6.919	4.776	4.574	87.95	94.9
7	6.200	5.800	5.440	81.70	..
8	7.185	5.600	5.328
9	6.620	4.880	4.684	88.50	94.9
U. S. P. sample	6.870	4.934	4.821	88.25	..
U. S. P. specifies	6.5-7.5	4.5-5.5	...	82-84	..

COMMENTS.

Most of the tinctures were found to be well within the U. S. P. requirements for iodine and potassium iodide. The titration method for potassium iodide is probably more exact in its results.

One tincture only conformed to the U. S. P. content for alcohol. A peculiar condition exists in that—if a tincture is made according to the U. S. P. formula—the alcoholic content will necessarily be higher than the required amount specified. Just why some of the tinctures were labeled 94.9 p.c. alcohol is difficult to understand.

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A NOTE ON THE ASSAY OF SOLUTION OF ARSENOUS AND MERCURIC IODIDE.

BY WILMER H. SCHULZE.

The U. S. P. IX defines Donovan's Solution as an aqueous solution containing not less than 0.95 per cent nor more than 1.05 per cent of As I_3 and not less than 0.95 per cent nor more than 1.05 per cent of Hg I_2 . In the U. S. P. X the solution is changed to weight volume basis, containing the same quantity of arsenous and mercuric iodide in 100 cc. instead of 100 grams. The method of assaying the solution is the same in both books. The statement is made that the solution must not be dispensed if darker than a pale yellow.

In January 1925, the writer had occasion to analyze a sample of Donovan's solution which was purchased from a pharmaceutical manufacturer. Using the official method for determining the arsenous iodide the result showed for two determinations 0.514 per cent and 0.508 per cent of arsenous iodide. About a month later another chemist in the same laboratory was requested to repeat the assay and found for two determinations 0.401 per cent and 0.398 per cent of arsenous iodide. There was no change in the percentage of mercuric iodide. The solution was practically colorless. Owing to the large volume of routine work, no further study of this variation in results was undertaken until the following November. The sample was allowed to stand on the laboratory table during this interval of time and had changed to a light brown color, and gave a positive test for free iodine.

A pint sample of Donovan's solution was purchased from two pharmaceutical manufacturers. The solutions were in amber glass containers and were placed in a dark cupboard when received. Both samples were practically colorless. Analysis for the arsenous iodide content gave the following results:

Sample 3653	Manufacturer A	As I ₃	0.236 %
Sample 3652 A	Manufacturer B	As I ₃	0.956 %

On December 17th, half of sample 3652 A was transferred to an amber bottle and allowed to stand on the laboratory table. Both containers were half-filled.

In January and February the arsenous iodide was again determined:

		January.	February.
3652 A	Sample in cupboard	0.897% As I ₃	0.846% As I ₃
3652 B	Sample on table	0.766% As I ₃	0.400% As I ₃
3653	Sample in cupboard	0.157% As I ₃	0.086% As I ₃

A determination of the total arsenic present in samples 3652 B and 3653 gave the following results:

3652 B	Total arsenic	1.001% calculated as As I ₃
3653	Total arsenic	1.053% calculated as As I ₃

The solutions were not examined again until April. Sample 3652 A showed no change in color while 3652 B and 3653 were both light brown and gave a positive test for free iodine.

CONCLUSIONS.

The arsenous iodide content of Solution of Arsenous and Mercuric Iodide undergoes a rapid change. This change appears to be very much accelerated by exposure to light. The present method for determining the arsenous iodide content is unreliable and should be changed to a determination of the total arsenic present.

BUREAU OF CHEMISTRY,
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NUMBER OF VOLUMES IN THE LIBRARIES OF THE SURGEONS GENERAL.

The Library of the U. S. Public Health Service (Surgeon General) contains about 9000 volumes; the Library of the Surgeon General of the Army contains nearly 900,000 volumes, bound and unbound.—See p. 334, May JOUR. A. PH. A.