A REPORT ON DAKIN'S SOLUTION.*

BY IRWIN A. BECKER.

It was the original intention to save a portion of a number of 10-liter lots of Dakin's solution, Daufresne formula, so as to represent, fairly, a period of six months; then to determine to what extent deterioration had taken place.

The results here presented cover a longer period on these same samples, and include several forms of hypochlorite solution for comparison.

Dakin's solution, after the boric acid formula, in 10-liter quantities, was first made by me in August, 1916, following directions carefully, and again in November, 1916.

These solutions were not assayed at the time of making, nor during their using, but samples of the last portions of each were set aside in well-filled, corked, 8-oz. bottles, in a dark cupboard of uniform medium temperature.

The same storing conditions obtained for all samples reported.

Being advised that it was intended to use Dakin's Solution freely, and that it should be made after the Daufresne technique, 10-liter lots were made every 8 to 14 days.

The chlorinated lime was assayed each time before using, and the quantities calculated on the basis of the assay. Ordinary crystal sodium carbonate was used instead of the anhydrous, in the proportion of 2.7 to 1, this factor being calculated from the molecular weights of these salts, respectively.

The chlorinated lime assay was made by a modified form of the method illustrated in Coblentz's Volumetric Analysis, First Edition, page 137–138, under "Chlorinated Lime."

The modifications consisting of using two mils glacial acetic acid instead of hydrochloric acid, and macerating the lime at least two hours, if possible, in a closely stoppered flask, then straining through cotton, the number of mils N/10 thiosulphate consumed equalling the number of percents of available chlorine.

The finished product was assayed in each case and the assay recorded in mils of N/10 thiosulphate V. S. At first, the assays of the finished product were stated in terms of available chlorine, but all have been converted into terms of sodium hypochlorite. All assays were made with the same apparatus, such as burettes, graduates, flasks, etc.

One hundred mils Dakin's Solution containing from 0.45 Gm. to 0.50 Gm. hypochlorite require from 120.8 to 134.3 mils N/10 sodium thiosulphate V. S.; 10 mils require from 12.08 to 13.43 mils volumetric thiosulphate. For convenience 10 mils were taken for assay excepting in one instance, when 5 mils only were used, and of the concentrated solutions 1 mil was used and the result multiplied by 10 to compare with Dakin's Solution.

The details of the assays on the various samples and remarks on modifying conditions are set forth in the following table:

Sample, and date of manufacture.	Date of, and original assay.	Assay 7/5/17.	Loss percent.	Assay 7/18.	Loss percent from original.	Remarks.
A¹.......	...	...	..	0.444	..	Boric acid formula, slightly alkaline to phenol-phthalein.
A²....... 11/16	0.706 1/5/17	0.614	13%	0.433	39%	Boric acid formula, cork good, bleached.
A³....... 11/16	0.54 1/5/17	...	..	0.349	36.4%	Boric acid formula, diluted to be about 0.5%, amber g. s. b.
B........ 1/5/17	0.515 1/5/17	0.49	5%	0.405	21.4%	Dakin's, cork good, bleached.
C........ 3/12/17	0.506 3/12/17	0.428	15.4%	0.273	46.0%	Dakin's, cork porous and decidedly bleached.
D........ 3/22/17	0.513 3/22/17	0.465	9.4%	0.322	37.0%	Dakin's, cork very poor, bleached.
E........ 6/25/17	0.462 6/25/17	0.462	0.0%	(Sample lost)		Dakin's, 10 days, hot weather. No loss.
F........ 7/5/17	...	0.53	(Sample lost)		..	Dakin's, fresh lot.
G¹....... (Rec'd 3/16)	...	...	..	0.348×10	55%	Commercial brand, assay as per label, 7.7% NaOCl.
G²....... (Rec'd 7/18)	...	...	..	0.500×10		Commercial brand, received a few days before assaying, assay as per label, 4.05% NaOCl.

Ordinary care only was exercised with stoppers, as some corks were better than others. It will be seen from the table that where the sample was well stoppered it did not fall below the lower limit of variation permissible, in six months.

The commercial, so-called stabilized, product lost strength, apparently, at about the same rate as Dakin's Solution, Daufresne formula.

THE USE OF LOGARITHMS AND ANTILOGARITHMS IN PHARMACEUTICAL ASSAYING.*

BY H. L. THOMPSON.

It has been my experience in teaching the subject of pharmaceutical assaying that one of the most difficult, tedious and nerve-racking parts of it is the performance of the mathematical calculations involved. As a result, I have attempted to instruct my students in the use of logarithms and antilogarithms, and after six years of such performance, there have resulted the following facts:

1st. As far as accuracy, the results obtained by using logarithms and antilogarithms is 0.01%, and that is considerably beyond the average accuracy in practice.

2nd. The time and labor saved by the use of logarithms and antilogarithms is about one-tenth or less than that used by the method of ratio and proportion, and the multiplication and long division of three or four decimal figures out to the third or fourth decimal place as required in determining strengths of drugs, chemicals and their preparations.

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