

The last product to be considered is peptone, and this is recognized by but one nation, namely, France, under the title Peptone Medicinal.

It is official as a pancreatic or peptic digestive product of albuminoids; is almost completely soluble in water, not coagulated by heat nor by the addition of nitric acid; it has a peculiar odor and a bitter taste when made by pancreatic digestion and a bitter and saline taste when made by peptic digestion.

A perusal of the before mentioned variations in the official methods adopted for the standardization of animal products by the various countries, shows that physiological chemists in general have not as yet adopted uniform methods along this line of chemistry. I predict, however, that with the advent of the next issue of the United States Pharmacopœia our foreign neighbors will admit our superiority not only in the manufacture of this important line of pharmaceuticals, but also in their standardization, and will adopt not only our products but our methods as well.

STANDARDIZATION OF SODIUM THIOSULPHATE VOLUMETRIC SOLUTION.*

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A reference to page 563 of the U. S. P., will show that the official method of standardizing sodium thiosulphate V. S., is to employ a decinormal solution of potassium dichromate proceeding as follows:

"To a solution of about 1 gm. of potassium iodide (Potassii Iodidum, U. S. P.), in 10 cc. of diluted sulphuric acid contained in a flask of about 500 cc. capacity, add slowly, from a burette, 20 cc. of tenth-normal potassium dichromate V. S., shaking after each addition. Place a watch-glass on the mouth of the flask and allow it to stand for five minutes, then dilute the solution with about 250 cc. of distilled water, add some starch T. S., and then, from a burette, the trial solution of sodium thiosulphate, in small portions at a time, shaking after each addition, and, toward the end of the operation, reducing the flow to drops, until the blue color of the mixture changes to a light green; note the number of cc. of the trial sodium thiosulphate solution consumed. Then dilute the sodium thiosulphate solution so that equal volumes of it and the tenth-normal potassium dichromate V. S. will exactly correspond to each other under the above conditions, at 25 deg. C. (77 deg. F.)."

On page 549 of the U. S. P., volumetric iodine solution is directed to be made by the following:

Tenth-normal iodine V. S. may be prepared according to either of the following methods:

"1. Dissolve 12.59 gm. of pure iodine (see below) in a solution of 18 gm. of potassium iodide in 300 cc. of water. Then add sufficient water to make the solution measure, at 25 deg. C. (77 deg. F.), exactly 1000 cc. Unless freshly prepared, its strength should always be determined anew at the time it is used. Transfer the solution to glass-stoppered vials.

Preparation of Pure Iodine.—Heat powdered iodine (Iodum, U. S. P.), in a porcelain dish placed over a bath of boiling water for twenty minutes, and stir it constantly with a glass rod, so that adhering moisture, cyanogen iodide, and most of the iodine bromide and iodine chloride, if present, may be vaporized. Then transfer the iodine to a porcelain or other non-metallic mortar, and triturate it with about 5 percent of its weight of dry potassium iodide, so as to decompose any remaining iodine bromide and iodine chloride. Then return the mass to the dish, cover it with a glass funnel, and heat the dish carefully on a sand-bath. Detach the

* Read before the Kings County Pharmaceutical Society, March 9, 1915.

sublimed, pure iodine, and, after pulverizing and drying for twenty-four hours over calcium chloride, keep it in well-stoppered bottles, in a cool place."

Since N/10 Iodine is the exact equivalent of N/10 $\text{Na}_2\text{S}_2\text{O}_3$, the U. S. P. on page 550 gives as an alternative method of preparing the N/10 Iodine the following:

"Dissolve about 14 gm. of iodine (Iodum, U. S. P.), in a solution of 18 gm. of potassium iodide (Potassii Iodidum, U. S. P.), in about 300 cc. of water, diluting finally to 1000 cc. Of this solution (which is too concentrated), carefully measure from a burette 10 cc. into a flask, then add gradually and cautiously, from a burette, tenth-normal sodium thiosulphate V. S. (shaking constantly) until the color of the solution is discharged. Note the number of cc. of the sodium thiosulphate V. S. consumed, and then dilute the iodine solution so that any known volume of the latter will require for decolorization exactly the same volume of the tenth-normal sodium thiosulphate V. S."

This indicated to me that the factor for $\text{Na}_2\text{S}_2\text{O}_3$ V. S. standardized by either potassium dichromate or resublimed iodine would be the same, and to determine whether such was actually the case the following work was undertaken: A N/10 $\text{K}_2\text{Cr}_2\text{O}_7$ V. S. was made up by the following method on page 551 of the U. S. P. employing Kahlbaum's Salt.

"Dissolve 4.8713 gm. of pure potassium dichromate, which has been pulverized and dried at 120 deg. C. (248 deg. F.), (see Reagent No. 85), in sufficient water to measure, at 25 deg. C. (77 deg. F.), exactly 1000 cc."

The $\text{Na}_2\text{S}_2\text{O}_3$ V. S. standardized against this had the factor recorded in tabulation below.

Another lot of N/10 $\text{K}_2\text{Cr}_2\text{O}_7$ made up by the same method using Baker's salt, the same $\text{Na}_2\text{S}_2\text{O}_3$ V. S. had the factor noted below.

Small amounts of Iodine prepared as directed under V. S. iodine were weighed off and after solution in water with the aid of KI employed to standardize the $\text{Na}_2\text{S}_2\text{O}_3$ sol.; the factor is recorded below.

Iodine prepared as directed by the U. S. P. under V. S. Iodine was mixed with KI placed in a small porcelain crucible, heated on a sand bath until copious evolution of iodine fumes. Then one of a set of watch glasses with ground edges, which were tared with a clip, was slipped over the top of the crucible until a sufficient amount of iodine had sublimed; after cooling, the watch glasses, clip and iodine were weighed again. The increase in weight being iodine. The watch glasses and iodine without clip were then put into a few cc. KI solution, and when the iodine was dissolved the $\text{Na}_2\text{S}_2\text{O}_3$ V. S. was run in until the reaction was complete. The factor for the $\text{Na}_2\text{S}_2\text{O}_3$ solution is noted.

Factor employing Kahlbaum's Chemical 1 cc.=.011342 grammes iodine.

1 cc.=.9009 cc. N/10 $\text{Na}_2\text{S}_2\text{O}_3$ V. S.

Baker's Chemical 1 cc.=.011362 grammes iodine.

1 cc.=.9025 cc. N/10 $\text{Na}_2\text{S}_2\text{O}_3$ V. S.

Iodine resublimed on funnel 1 cc.=.011539 grammes iodine.

1 cc.=.91652 cc. N/10 $\text{Na}_2\text{S}_2\text{O}_3$ V. S.

Iodine resublimed on watch glass 1 cc.=.011533 grammes iodine.

1 cc.=.91604 cc. N/10 $\text{Na}_2\text{S}_2\text{O}_3$ V. S.

These results indicate that the use of resublimed iodine gives higher and probably more accurate results than the potassium dichromate method.

I am fully aware of the fact that the potassium dichromate used for standardi-

zation is usually directed to be checked against pure iron as is evidenced by the following citation from page 136, U. S. Dept. Agr. Division of Chemistry, Bul. 107, revised, under the determination of the iodine number of fats and oils.

"Decinormal potassium bichromate.—Dissolve 4.9083 grammes of chemically pure potassium bichromate in distilled water and make the volume up to 1 liter at the temperature at which the titrations are to be made. The bichromate solution should be checked against pure iron."

But of course this requires another determination and further complicates the standardization of the $\text{Na}_2\text{S}_2\text{O}_3$ V. S.

In view of the close duplicates obtained by the use of resublimed iodine and simplicity of employing the watch glasses and clip method, I would suggest this as the most satisfactory means of accurately standardizing $\text{Na}_2\text{S}_2\text{O}_3$ V. S.

The sodium thiosulphate solution was made by taking 4 liters of distilled water, boiling until all air and CO_2 were expelled, placing in a large amber-colored bottle, and when cool, dissolving about 100 grammes of C. P. sodium thiosulphate in the liquid.

The bottle was set away in a dark place until ready for use (about six weeks). When a syphon tube with pinch cock was inserted and a layer of neutral liquid petrolatum placed on top of the liquid, by blowing into a hollow glass tube in the other hole of the rubber stopper the syphon was started.

Making up the solution by using distilled water from which the air and CO_2 are expelled, allowing to stand until decomposition and precipitation has taken place, covering with a layer of liquid petrolatum and syphoning off the quantities of solution required makes an ideal method of handling not only this volumetric solution but very many others, it being our practice to follow this method whenever possible.

RESEARCH AND ANALYTICAL DEPARTMENT RIKER LABORATORIES.

A PROFESSIONAL "SIDE LINE" FOR THE PHARMACIST.*

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The introduction into therapeutics, of antitoxins, vaccines, serums, bacterins, etc., and the principles inculcated in the "Therapia Sterilans Magna" with the advent of Ehrlich's Salvarsan and Neo-Salvarsan have had a marked influence upon the prescription department of the pharmacist, and, for self-preservation, he has turned to commercialism and has converted his pharmacy into a miniature department store, instead of taking the more logical and ethical course of preparing to supply the physician with these new therapeutic agents, which have replaced so many of the old ones that at one time made the prescription department most remunerative.

In this paper, I do not aspire to the dubious distinction of originality, but will merely attempt to illustrate that the pharmacist can, with a little additional prepa-

* From a paper read before the Nashville Branch A. Ph. A., February 17, 1915.