Recent analyses of seventeen lots of 150 barrels of 200 pounds each, representing about 500,000 pounds, gave the following data:

No.	Ash	Nitrogen	Fat	
1	0.042	0.018	0.0084	(American)
2	0.024	0.013	0.0096	"
3	0.02	0.01	0.025	"
4	0.0209	0.0061	0.017	"
5	0.006	0.0064	0.0213	"
6	0.066	.....	0.0026	(Foreign)
7	0.011	0.0055	0.014	(American)
8	0.010	0.0058	0.008	"
9	0.014	0.006	0.0052	"
10	0.01	0.006	0.0064	"
11	0.01	0.0083	0.0016	"
12	0.01	0.0083	0.002	"
13	0.01	0.0037	0.0168	"
14	0.022	0.03	0.0155	(Foreign)
X	0.23	0.0102	0.0722	Poor appearance, rejected
15	0.020	0.017	.....	
16	0.04	0.0065	0.0045	(Foreign)
17	0.02	0.0069	0.0059	(American)

The percentage of absolute sugar of milk, as determined by the polariscope, was not less than 99.73 percent in any of the samples.

The most striking result of the analyses is the low content of ash. The U. S. P. (IX) standard for ash has been fixed at 0.25 percent; the largest percentages found was 0.066 and 0.04, foreign brands.

ANALYTICAL LABORATORY OF SMITH, KLINE AND FRENCH CO.

INVERSION OF CANE SUGAR IN SYRUPUS.*

JOSEPH L. MAYER.

In the February, 1902, issue of the Druggists' Circular (page 27), in an article, "Fallacious Tests for Glucose in Cane Sugar Syrup," I showed that Syrupus made according to the official formula by the hot process did not contain more than a very faint trace of reducing Sugar, but after being stored for five months in a corked bottle which had been placed in a cool, dark place, yielded a very heavy precipitate of Cuprous Oxide when tested with Fehling's Solution, indicating that much of the Cane Sugar had been inverted.

The tests made at that time being qualitative only the thought occurred to me recently to make a series of quantitative tests to determine exactly how much of the Cane Sugar was converted into Reducing Sugar, and the following work was therefore undertaken.

On January 28th, 1915, 1000 cc. of syrupus were made following the directions on page 435 of the U. S. P., VIII, for the cold percolation process and the same day 1000 cc. of syrupus were made by the method on page 435 of the U. S. P., VIII, for the hot process, each sample being placed in a sterilized glass stoppered bottle.

The syrup made by percolation had a specific gravity of 1.3148 at 25 deg. C.,

* Read before the New York State Pharmaceutical Association, June 29, 1915.

and the sample made by the hot process had a specific gravity of 1.3126 at 25 deg. C.

A quantity of syrup from each bottle was immediately weighed in tared 100 cc. graduated flasks and water added to make 100 cc. and the reducing sugar in 50 cc. of this solution determined by the following method of Walker and Munson:

(1) *Preparation of Solutions and Asbestos.*

(a) *Solutions.*—Use solutions (a), and (b), and (c) as given on page 42, under Soxhlet's modification of Fehling's solution.

(b) Asbestos.—Prepare the asbestos, which should be the amphibole variety, by first digesting with 1:3 hydrochloric acid for two or three days. Wash free from acid and digest for a similar period with soda solution, after which treat for a few hours with hot alkaline copper tartrate solution of the strength employed in sugar determination. Then wash the asbestos free from alkali, finally digest with nitric acid for several hours, and after washing free from acid shake with water for use. In preparing the gooch crucible load with a film of asbestos one-fourth inch thick, wash this thoroughly with water to remove fine particles of asbestos; finally wash with alcohol and ether, dry for thirty minutes at 100 deg. C., cool in a desiccator and weigh. It is best to dissolve the cuprous oxide with nitric acid each time after weighing and use the same felts over and over again, as they improve with use.

(2) *Determination.*

Transfer 25 cc. of each of the copper and alkaline tartrate solutions to a 400 cc. Jena or non-sol beaker and add 50 cc. of reducing sugar solution, or if a smaller volume of sugar solution be used, add water to make the final volume 100 cc. Heat the beaker upon an asbestos gauze over a Bunsen burner, so regulate the flame that boiling begins in four minutes, and continue the boiling for exactly two minutes. Keep the beaker covered with a watch-glass throughout the entire time of heating. Without diluting, filter the cuprous oxide at once on an asbetos felt in a porcelain gooch crucible, using suction. Wash the cuprous oxide thoroughly with water at a temperature of about 60 deg. C. then with 10 cc. of alcohol and finally with 10 cc. of ether. Dry for thirty minutes in a water oven at 100 deg. C., cool in a desiccator and weigh as cuprous oxide.

N. B.—The number of milligrams of copper reduced by a given amount of reducing sugar differs when sucrose is present and when it is absent. In the tables following the absence of sucrose is assumed except in the two columns under invert sugar, where one for mixtures of invert sugar and sucrose (0.4 gram of total sugar in 50 cc. of solution) and one for invert sugar and sucrose when the 50 cc. of solution contains 2 grams of total sugar are given, in addition to the column for invert sugar alone. (U. S. Dept. of Agr., Bur. of Chem., Bull. 107, rev., page 241 and 242.)

The cold percolation process sample contained .174% invert sugar.

The hot process sample contained .138% invert sugar.

The cane sugar from which the syrups were made was tested by the same method and contained .111% invert sugar, thus indicating that in the process of making the samples very little inversion had taken place.

The syrups were then placed in a cool dark place, samples being taken from them at frequent intervals and tested with the following results:

		Cold	Hot	Invert Sugar
January 28, 1915	(The day the samples were prepared)	.174%	.138%	"
February 10, 1915		.172%	.171%	"
" 25, 1915		.292%	.170%	"
March 9, 1915		.559%	.401%	"
" 23, 1915		1.123%	1.061%	"
April 2, 1915		1.807%	1.595%	"
" 9, 1915		2.029%	1.905%	"
" 15, 1915		2.367%	2.354%	"
May 6, 1915		3.411%	3.566%	"
" 19, 1915		4.978%	4.735%	"
June 3, 1915		6.586%	5.751%	"

These remarkable results not only disprove the statement very frequently made that in making syrups by the hot process much of the sugar is inverted, a statement which my original article above referred to disproved, but they also conclusively show that in making the samples by either the cold or hot process practically no inversion takes place. They show that upon standing the sugar in both samples becomes inverted, the inversion being greater in the cold process syrup than in that where heat is employed in the manufacture.

I am still at work on the samples and hope in my next paper on the subject to report further results of the investigation.

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SOME EXPERIENCES WITH THE SALOL-COATING OF PILLS.*

J. C. AND B. L. DE G. PEACOCK.

The coating of pills with salol in order to render them insoluble in the stomach for the purpose of carrying the medicine into the intestines has been practiced for years past. Methods have been frequently described and one is set forth in the current edition of the National Formulary.

During the past two years salol-coated pills have been frequently called for, and the knack of salol-coating had to be developed by our prescription department. What is about to be said is by no means a discovery, but merely a recitation of experiences in the actual practice of the process, a few simple facts which may help those who are called upon to do this work for the first time.

Two methods of salol-coating have been suggested; first, that of dipping the pills into the melted salol by means of pins and rotating in the air until the salol has solidified, removing the pin when a sufficient coat has been taken on and closing the puncture with a drop of melted salol.

Second, the method in which the pills are placed in a vessel in which salol has been melted, and the vessel rotated until the salol congeals.

The second method is the plan given in the National Formulary.

The first method does not appear to have been as generally used as the second. It is very much more tedious to stick pins into the pills, dip them into the salol

* Read at the meeting of Pennsylvania Pharmaceutical Association, June, 1915.