

Total soluble alumina.....	17.00	per cent.
Alumina combined as normal.....	15.20	" "
Basic alumina = so-called "free"	1.80	" "

The $\text{Al}_2(\text{SO}_4)_3$ calculated from 15.20 per cent. of alumina equals 50.96 per cent., whereas if calculated from 17.00 per cent. the $\text{Al}_2(\text{SO}_4)_3$ equals 57.00 per cent. In conjunction with these figures it must be borne in mind that experiment proves the basic sulphate of alumina to be relatively even more efficient than the difference in the above interpretations of analysis indicate.

DROPPING FLASK FOR STANDARD SOLUTIONS.¹

BY FRANK VANDERPOEL.

IT is well known that in working with standard solutions, the strength of the latter, when determined by the volume used, is influenced by the temperature to quite an appreciable extent. In fact, if a solution be standardized at 25° C. and afterward used at 20° C., its strength at the latter temperature is 1.001 times what it was at the former. For this reason it is necessary when employing volumetric apparatus to note the temperature of the solutions if very accurate work be done.

Again it has been observed that burettes and delivery pipettes sometimes vary in the volume of liquid delivered, this variation depending upon the nature of the solution or the ease with which it wets the sides of the glass tube, as all solutions are not the same in this respect.

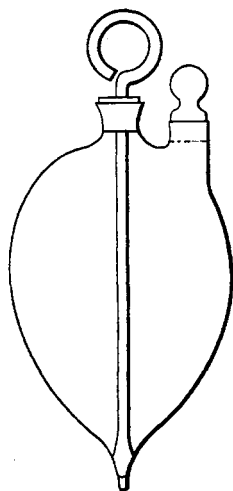
With an apparatus so made, however, that the standard solution is weighed instead of measured, these objections disappear, while accuracy is not impaired; in fact, with a common balance, sensitive to one centigram, much finer work can be done by weighing the solution than by measuring with a burette which reads to tenths of a cubic centimeter.

A number of dropping flasks and bottles have been invented from time to time with the above object in view; the one here represented having been devised some four or five years ago and kept in constant use in my laboratory ever since. It is quite simple and consists of a cylindrical or globular flask provided with two openings at the top and a dropping tube at the bottom

¹ Read December 8, 1893.

into which a glass rod is ground so as to make a tight joint. The rod runs through a perforated stopper in the central opening at the top in order that it may be kept in proper position. The second opening at the top is used when it is necessary to fill the bottle.

The apparatus may be supported by a small light tripod upon the pan of the balance, or it may be provided with two small hooks of brass wire fastened to a collar of the same metal which encircles the upper central tubulus. By means of these hooks the bottle is easily and quickly suspended from the bows supporting the balance pans.



I make use of a common pulp scale with four inch pans, and after counterpoising the filled bottle by means of brass cup weights supplemented by fine shot, perform the titration, and upon its completion determine the amount of liquid used by adding weights to that side of the balance from which the bottle is suspended. This necessitates but one calculation. The bottle

may be used for solution of potassium permanganate or silver nitrate or in fact any solution which is generally employed in a burette furnished with a glass stop-cock.

It is very readily taken apart, cleaned and dried.

NEWARK, N. J.

ON THE ESTIMATION OF POTASSIUM IODIDE AND SODIUM ACETATE IN THE PRESENCE OF COMPLEX ORGANIC MIXTURES.¹

BY JAMES H. STEBBINS, JR., PH.D.

I RECEIVED a short time since a sample of medicine for examination, which on qualitative analysis was found to contain potassium iodide and sodium acetate, together with certain complex vegetable extracts, and as the determination of the first two named compounds gave me a great deal of trouble before a

¹ Read January 19, 1894.