close as could be estimated. Using the ordinary spindle this corresponds to an overall accuracy of around 1/10 mm³ which amount corresponds to around one part in 10,000 of the total delivery capacity of the burette. The total capacity is determined by weighing the mercury delivered by full extension of the spindle. Temperature instability is practically avoided if the volume of the instrument is kept as small as possible. With considerate handling a water-jacket is not necessary.

The solution to be used is sucked into the bulb as shown in the figure and the instrument is ready for use. The size and shape of the burette can be varied according to the special purpose. It is an advantage that it is immaterial for the accuracy of the instrument how quickly the solution is delivered, for the measurement is not affected by solution which sticks to the walls of the capillary.

By replacing the original spindle with a drill rod of smaller diameter the total volume delivered can be reduced to very small limits and still permit accurate measurement of 1/10,000 part. For such a purpose the spindle and screw of the micrometer is first loosened from the thimble (7). The spindle is cut off and in its place is fastened by press fit a carefully alined drill rod of the requisite diameter. An accurate bushing is fitted in the original spindle bearing. The reservoir and washers of this smaller burette are correspondingly smaller, with a bore just large enough to clear the drill rod. The burette bulb likewise is made to correspond to the volume of the drill rod. By using 1/16 inch drill rod such a burette was found to measure delivered amounts with an accuracy of around 1/200 mm³.

A microburette of this type is to be described later as part of a micro gas analyzer. The burette was made by J. D. Graham.

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SWARTHMORE COLLEGE

A METHOD FOR DETERMINING THE CONCENTRATION OF PROPYLENE GLYCOL VAPOR IN AIR

THE discovery that propylene glycol vapor, dispersed in air in very minute concentrations, is capable of destroying air-borne bacteria and viruses[1,2,3] has made necessary the development of a technique for estimating the concentration of this gas in the air. A satisfactory procedure has been found to consist of bubbling 2-liters of the air through 10 cc of water with the aid of a sintered glass filter, and analyzing the propylene glycol content of the resulting solution by the method of Lehman and Newman,[4] modified to accommodate the smaller concentrations involved.

An efficient gas disperser can be made by sealing a circular disk cut from a fairly coarse fritted glass filter, into a glass tube, or can be bought from commercial supply houses. Complete absorption of the propylene glycol is obtained when the rate of sampling does not exceed 1/5 liters of air per minute. If rubber connections are used, the two glass tubes should touch inside the connector, as propylene glycol is quite soluble in rubber.

The contents of the test-tube are quantitatively washed into an Erlenmeyer flask. 1.00 cc of M/10 sodium periodate is added, and the sample is placed in an icebox for 15 minutes. At the end of that time, 5 cc of 7 per cent. $NaHCO_3$ is added, then 2.500 cc of N/10 Na_3AsO_3, followed by 0.2 cc of freshly prepared 20 per cent. KI. The solution is allowed to stand for 15 minutes at room temperature, after which 1 cc of 1 per cent. starch solution is added, and the solution titrated with 0.01N I_2 solution. A blank is run through the same procedure, and the number of milliliters of I_2 solution used in the blank is subtracted from that required by the sample. One cc of .01N I_2 solution is equivalent to 0.38 mgs of propylene glycol.

This procedure has been checked by analysis of samples of air into which known amounts of the glycol have been vaporized. The method is accurate to within .05 mgs of propylene glycol in the analyzed sample. When very dilute mixtures of propylene glycol are being determined (0.1 mg per liter or less), it is therefore necessary to use 4 to 6 liters of air for each sample.

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