770 Basic Theory of Gas Indicator Tube Calibration. B. E. Saltzman. Am. Ind. Hyg. Assn. J. 23, 112-126 (Mar.-Apr. 1962).

Theoretical mathematical expressions are developed for indicator tube calibration showing effects of gas concentration, sample volume, flow rate, tube diameter, grain size, and experimental errors. In the usual case the kinetic rate of gas sorption is controlling, and stain length is proportional to the logarithm of the product of gas concentration and sample volume. Flow rate must be precisely replicated. Formulas are given for other cases where partial and complete saturation of the stained portion of the indicator gel occur. These expressions should aid in optimal design and development as well as use of indicator tubes.
-- Author's abst.

771 Variations in Concentration of Carbon Dioxide in the Free Atmosphere. W. Bischof. Tellus 14, 87-90 (Feb. 1962). (Tellus, Editor, 124 Lindhagensgatan, Stockholm, Sweden*).

Variations of carbon dioxide in the atmosphere have been investigated by the analysis of 186 flask samples taken from an airplane at heights up to 3 km. during the period 1957-1961. The carbon dioxide concentration changes considerably from one time to another. Above 1,000 m the range is 308 to 320 ppm the average 314 ppm. The range and average both increase towards the ground. A seasonal variation in concentration is noted. The amplitude of the variation decreases with increasing height above the ground. The minimum occurs in summer and the maximum in winter at all altitudes. Some of the seasonal variations at ground level as previously obtained from the Scandinavian network for carbon dioxide sampling do not show up in the analyses from upper levels. -- Public Health Eng. Abstr.

772 The Determination of Sulfur Trioxide in Flue Gases. H. Gokeşyr and K. Ross. J. Inst. Fuel 35, 177-179 (Apr. 1962).

A simplified method has been developed for the rapid determination of sulfur trioxide in flue gases. The sulfur trioxide is retained by condensation as sulfuric acid in a certain temperature range below its dewpoint. The collecting apparatus is easy to operate and allows gas sample rates as high as 10 l./min. to be achieved. The sulfuric acid is estimated by a simple acid base titration. Thus in less than 15 minutes a complete determination may be carried out and the apparatus prepared for the next test. The method described has proved reliable and more convenient than the methods previously used. -- APCA Abstr.

773 Spectrophotometric Determination of Nitric Oxide in Auto Exhaust. S. W. Nickels and J. Harkins. Anal. Chem. 34, 985-988 (July 1962).

A convenient and rapid procedure for the oxidation of nitric oxide in auto exhaust to nitrogen dioxide has been developed which permits determination by direct spectrophotometric absorbance measurements. The method is much faster than the phenoldisulfonic acid method commonly used, and the results of the two methods are comparable. A novel recording spectrophotometer for following the oxidation of nitric oxide is also described. Preliminary observations suggest that an apparatus for continuous determination could be developed by compressing and expanding the sample under empirically selected conditions prior to the spectrophotometry. -- Authors' abst.

774 The Determination of Small Amounts of Nitrogen Oxides in Flue Gases. W. Leithe. Mikrochim. Acta Nos. 1-2, 166-170 (1962). (Mikrochimica Acta, Springer-Verlag, Moelkerbastei 5, Wien 1, Austria*).

A method is described for determining nitrogen oxides in flue gases. The gas sample is shaken with dilute hydrogen peroxide and the resulting nitric acid is titrated acidimetrically. If a foaming agent is added the absorption of the nitrogen oxides is practically complete after as little as 5 minutes shaking. -- Public Health Eng. Abstr.

* Address not in current List of Periodicals.