

- 475 Use of Interference Microscopy for the Mineralogical Analysis of Samples of Airborne Dust Obtained With the Thermal Precipitator. J. Dodgson. Nature 199, 245-247 (July 20, 1963).

This technique, which was not previously applied to mineralogical analysis, was used to reliably identify the chemical composition of individual coal dust particles in the size range 1-20 microns. Dispersion staining is employed in conjunction with a double-beam interferometer mounted in the microscope to produce colored images in white light. The colors may be varied by orientation of a goniometer analyzer in the transmitted beam. Data are presented for analysis of samples for quartz, kaolinite, and muscovite content. Quartz, for example, can be viewed as pale or light blue to dark red; the color depends on the analyzer setting and associated positive or negative phase contrast, respectively. The method does not depend on diffraction by the object and is thus free of "halo" effects. It also permits rapid shift of positive and negative phase contrast and variation of intensity of interference colors in each position. The composition of samples analyzed for quartz, muscovite, and kaolinite by this method were in reasonably good agreement with results obtained by chemical and x-ray diffraction analyses. -- Public Health Eng. Absts.

- 476 Measurement of the Flue Gas Solids Burden From Oil-Fired Installations Using a Silica Wool Filter. L.K. Rendle. J. Inst. Fuel 37, 25-30 (Jan. 1964).

A method is described for the routine determination of solids burden in flue gases from full-scale oil-fired installations in the field and from pilot scale rigs in the laboratory. The method is used when no particle size distribution is required, and is capable of giving reliable results over the whole range of operating conditions. A silica wool filter is used, as such a filter does not alter in weight as a result of possible reaction with sulfur trioxide and accurately measures the smaller amount of solid material in the flue gases from an oil-fired plant as opposed to flue gases from a coal-fired plant. The apparatus is for use in the field. -- APCA Absts.

- 477 A New Method for the Relative Calibration of a Small Particle Counter. J.E. Quon. Am. Ind. Hyg. Assn. J. 25, 15-24 (Jan.-Feb. 1964).

A method is presented for the calibration of a photoelectric nuclei counter suitable for measuring concentrations of combustion nuclei in the range of 10^3 to $10^5/\text{cm}^3$. The relative calibration of the counter was obtained by developing the relationship between instrument response and known relative concentrations of nuclei. The calibration can be obtained in less than 10 minutes with good reproducibility. A high concentration of nuclei was produced by a propene or methane diffusion flame. Known relative concentrations were obtained by controlled dilution of the chamber nuclei concentration. -- Author's abst.

- 478 New Developments in Phase and Dispersion Staining Microscopy for the Examination of Dust Samples. G.C. Crossmon. Am. Ind. Hyg. Assn. J. 25, 25-27 (Jan.-Feb. 1964).

This paper is a report of some new improvements in the use of the phase and dark-field microscopes for the counting, particle size determination and identification of dusts. Also included is a macroscopic method of dispersion staining that does not require the use of a microscope. -- Author's abst.

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