

produced if sulfur dioxide is present is compared with a standard stain chart or with a disk of standard tints in order to determine the concentration of the gas. A series of 5 colors, representing 1 to 20 ppm of sulfur dioxide in a 360 ml. sample, was found to be adequate.

-- APCA Absts.

- 183 A Spectrophotometric Method for the Determination of Mercaptans in Air. H. Moore, H. L. Helwig and R. J. Gaul. *Am. Ind. Hyg. Assn. J.* 21, 466-470 (Dec. 1960).

The method described is quick and accurate and determinations may be made using apparatus common in air pollution and industrial hygiene work. The method determines total mercaptans and does not differentiate between individual mercaptans although it is most sensitive to the low molecular weight alkanethiols. Hydrogen sulfide, sulfur dioxide, and nitrogen dioxide do not interfere at the concentrations usually encountered in air pollution and industrial hygiene studies.

-- Authors' conclusions

PREVENTIVE ENGINEERING

- 184 Recommendations on Heights for New Industrial Chimneys. G. Nonhebel. *Smokeless Air*, No. 114, 280-299 (Summer 1960).

Engineers responsible for the design of new factories are frequently faced with the difficulty in deciding the height of chimneys to disperse adequately the discharged gases and residual dust. Under the Clean Air Act, local authorities must approve the height of new chimneys. The major consideration is the effect of the discharge at ground level. Formulae have been used for some years for calculating the gas concentration and rate of dust fall under normal weather conditions. From a review of available information, recommendations are now made that the height of a new chimney serving a large plant should be such that the calculated 3-minute maximum concentration of sulfur dioxide at ground level should not exceed 40 parts per hundred million in areas of heavy industry or high housing density and 50 ppm in other areas. Similarly, the calculated maximum rate of deposit of grit and dust from a new chimney should not exceed 1000 g./100 sq. m. per month with a wind direction constant within an octant. The formulae proposed are not applicable to emissions from relatively low chimneys serving small plants; consequently, recommendations based on experience are made for a sliding scale of heights from 60 to 120 ft. for boiler plants of aggregate capacity 5000 to 33,000 lb./hr. Worked examples show that rate of dust deposit rather than ground-level concentration of sulfur dioxide is usually the factor which should control the height of boiler plant chimneys. Prevention of emission of particles or aggregates larger than 76 microns is most important. Additional factors meriting consideration are: (1) rate of ground coverage by a film of deposited dust (less than 0.04% per day suggested); (2) distance from the chimney at which dusty plumes become substantially invisible; (3) chimney heights suggested.

-- Public Health Eng. Absts.

- 185 Correlation of Dust Scrubber Efficiency. K. T. Semrau. *J. Air Pollution Control Assn.* 10, 200-207 (June 1960).

Data correlated in this and an earlier paper are summarized in a table and figure. In all cases it is found that the number of transfer units may be represented by a simple exponential function of the contacting power. Correlation of the literature data generally confirms the findings of the earlier studies, on the relationship of efficiency and contacting power. Efficiency is found to have little relation to scrubber design and geometry, but to be dependent on the properties of the aerosol and on the contacting power. There are few data to show the effect of scrubber size, but a number of the studies cited report that there are essentially no