

PREVENTIVE ENGINEERING

- 281 Performance of Automatic Louvers in Industrial Ventilating Systems. I. Kingsley. Monthly Rev., N. Y. State Dept. Labor 34, 37-39 (Oct.); 43, 44 (Nov. 1955).

The industrial codes in New York State contain regulations prohibiting the use of louvers in exhaust systems. However, they may be desirable in some cases, and an investigation of the performance of louvers under actual operating conditions is in order to determine whether they may be used under specific conditions. The tests are described and results are reported. In summary: (1) the pressure drop through clean louvers appears to be excessively high, and this may result in increased expenditure for larger fans and motors or cause inadequate control at the operation; (2) automatic louvers should not be used on the discharge ducts of dry spray painting exhaust systems on account of the excessive pressure drop caused by the deposition of oversprayed material on the louver; (3) louvers should not be used in any exhaust system in which a tacky, sticky, lumpy, flammable, or corrosive material may be deposited on or cause corrosion of the louver; and (4) the only systems in which automatic louvers appear to be feasible are low velocity systems handling air or essentially air. Even then, the temperature should not be so high and the nature of any gaseous materials carried should not be such that corrosion will occur.

- 282 The Efficiency of Cyclone Dust Collectors. J. Dauphin. Genie chim. 73, 121-129 (1955). French.

Earlier theories of cyclones are discussed and a new theory is developed. The forces on particles in the upper and lower zones of the cyclone are analyzed by using the concept of the stationary particle, which is that particle size which will have no radial force component at $r(\rho)_0$, the arithmetical average of the radii of the separator and the concentric exit duct, because the radial component of the air drag on the stationary particle is equal to its centrifugal force. The data of ter Linden (Inst. Mech. Engrs. Proc. 160, 223, 1949) have suggested that at r_0 there is no vertical velocity component in the air, the vertical velocity being downward at a radius higher than r_0 and upward at a radius higher than r_0 . Equations for the separation are developed for particles larger and smaller than the stationary particle. The calculated efficiencies are in accord with the data of ter Linden.

-- Chem. Absts.

- 283 A Unique Wet Collector for Lightweight Aggregate Dusts. H. E. Seifert and J. H. Fanney, Jr. Am. Ind. Hyg. Assn. Quart. 16, 301-306 (Dec. 1955).

The lightweight aggregate industry is comparatively new and in the production of this material the emission of atmospheric dust can be a serious problem. The amount of effluent from the kilns of the plant described was approximately 50,000 c. f. m. Although several collectors were tried, including one commercial wet type, none of them operated successfully for more than a few weeks because of the abrasive action of the dust or the sulfur content of the gas. The temperature of the effluent from the kilns was approximately 500° F. In order to adequately control the dust from the kiln, a dust collector built of specially treated wood for resistance to heat and acid was constructed. A series of baffles and nozzles were installed to increase the collection efficiency. Over 90% of the atmospheric dust was eliminated and no complaints have been received since this collector was put into operation.

-- Authors' summary

- 284 Role of Electric Forces in the Filtration of Aerosols by Fiber Filters. T. Gillespie. J. Colloid Sci. 10, 299-314 (June 1955).

The net electric charge on the fibers of various filters and the electric charge distribution of typical test aerosols were measured. A simple theory of filtration which included electrical as well as mechanical effects was developed in order to apply