

A MONTHLY
MAGAZINE FOR ENGINEERS
AND CONTRACTORS CONCERNED WITH

HEATING AND VENTILATING

COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL AIR CONDITIONING, REFRIGERATION, PIPING, HEATING, VENTILATION

FOR JUNE, 1944
NUMBER 6

Dust as an Industrial Health Hazard

F. W. HUTCHINSON

Assistant Professor of Mechanical Engineering,
University of California, Berkeley, Calif.

Asbestosis

Asbestos dust is second only to free silica in the magnitude of health hazard which it represents. Asbestos is a fibrous material of varying composition, but is usually made up of approximately 43% magnesia, 40% silica and 14% water. Oxide of iron is frequently present and appears as dark particles among the translucent fibers—the fibers are of such length and fineness that cloth weighing less than 8 oz. per square yard has been made from them.

The lung condition resulting from the inhalation of this dust is known as asbestosis and resembles silicosis in its main clinical aspects, but differs due to the enhanced rate of development. Under average industrial conditions the length of employment in fatal cases is only about one-half that which is usual for silicosis. It is estimated that there are in the United States approximately 10,000 men exposed to this hazard as a result of work in the insulating, asbestos cloth, and similar industries. As is true of the silicosis exposure estimates, this figure does not take into account the number of persons exposed as a result of employment in the process industries where asbestos finds use, under various trade names, as a filter aid. In one respect asbestosis is less deadly than silicosis—that is, there is seemingly a lower susceptibility to the superinfection of pulmonary tuberculosis. The danger of contracting the disease is apparently not influenced by either age or sex. Like silicosis, it is incurable and progressive; a case is reported of a patient who was exposed to asbestos dust for one year and whose sputum showed the presence of asbestosis bodies fourteen years later.

Very few data are available on the relation of dust concentration to the incidence of the disease. No minimal safe concentrations have yet been set up and information is scant as to the conditions in those plants where a hazard is known to exist. It has been determined, however, that the asbestos dust encountered in fabricating plants is free of silica when air is floated at the breathing level and that the danger of the dust increases as the quality or length of the fibers increases.