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INDUSTRIAL RELATIONS BULLETIN

DATE 6/22/83	SUBJECT Industrial Hygiene	RESPONSIBLE DEPT. Employee Health Services	SUBJECT NO. 4
SUPPLEMENT	Asbestos	Supersedes None	DATE 7/18/75

Asbestos is a generic term that describes a variety of naturally occurring fibrous, incombustible silicate minerals. Although tremendously valuable to industry, these minerals have been closely linked to asbestosis, a degenerative lung-scarring disease, and to lung cancer. The Occupational Safety and Health Administration (OSHA), therefore, has regulated employee exposure to asbestos since shortly after the agency's inception. OSHA has defined asbestos, established standards for its use, and set permissible exposure limits. The initial airborne asbestos fiber limits have been revised downward. Regulations under the OSHA asbestos standard are covered in 29 CFR 1910.1001. Asbestos exposure in Ontario is regulated under the Occupational Health and Safety Act (Revised Statutes of Ontario, 1980, Chapter 321, August 1982). Exposure limits presently differ under the two regulations; however, industrial hygiene work practices to control dust and fiber in air are the same.

Six fibrous minerals, members of a family called silicates, are recognized as asbestos: chrysotile (white asbestos), actinolite, amosite (brown asbestos), anthophyllite, crocidolite (blue asbestos) and tremolite. Commercially, chrysotile is the most important form of asbestos, accounting for approximately 95% of the asbestos used in North America. Some talc contains various amounts of asbestos.

Asbestos has about 3000 different uses, with approximately two-thirds being used in the construction industry in building products, insulation, friction materials, and textiles. Manufactured products have included reinforced asbestos cement sheets and pipes, patching and taping compounds, floor and ceiling tiles as well as paints, coatings and sealants containing asbestos as reinforcing fillers, pipe linings and fillers for various liquids. Friction products include clutch facings and brake linings for automobiles and trucks, railroad cars, airplanes, and industrial machinery. A variety of other uses are known including theater curtains, fire blankets and other thermal protection, filtration materials and, until recently, dry wall patch compounds and imitation fireplace ashes.

Once incorporated into manufactured items, hazards resulting from asbestos are less probable, as long as the substance is not disrupted. However, the fibers are nearly indestructible, and a potential health risk arises whenever asbestos fibers are set free, resulting in airborne asbestos dust.

Health Hazards

Asbestos exposure can cause asbestosis, cancer of the lungs and digestive tract, and mesothelioma.

Asbestosis is a diffuse fibrotic lung disease caused by exposure to high concentrations of asbestos dust and fiber, usually after several years of exposure. The onset of asbestosis appears to depend on dust and fiber concentration, fiber shape, type of asbestos, and length of exposure. Usually, the disease becomes evident 20 or more years after the first exposure to asbestos. Once established, however, a highly disabling pneumoconiosis can progress even after exposure has ceased.

Bronchogenic carcinoma (lung cancer) and mesothelioma of the pleura and peritoneum (cancer of membranous lining of the chest and abdominal cavities) are also associated with asbestos exposure. Excesses of cancer of the larynx, stomach, colon, and rectum have also been observed. Some forms of asbestos appear far more hazardous than others. As with asbestosis, there can be a long latent period, generally more than 25 years for mesothelioma. The mechanism of action is not currently known. Asbestos is different from most chemical carcinogens because it is not metabolized. Thus even limited exposures to high levels leads to continuing presence of inhaled asbestos particles or

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