

Safety Appliances Company, Model G). Breathing zone samples were obtained by fastening the pump to the operator's belt and the filter head to the outside of his collar at approximate breathing zone height. Thus, the breathing zone sample was representative of the time-weighted average conditions to which the operator was exposed during the sampling period.

Each sample was analyzed subsequently for asbestos fibers using the method specified by the National Institute for Occupational Safety and Health. Briefly, this method consists of the following steps: a pie-shaped section of each filter is cut carefully from the filter and mounted on a standard microscope slide using a high viscosity solution of membrane filter material in a 1:1 mixture of diethyl oxylate and dimethyl phthalate to render the filter transparent. Asbestos fibers, defined as particles having an aspect ratio (apparent length to width) of three or greater, which were observable on the surface of the filter were counted using a 10X eyepiece and a 40X objective with phase contrast illumination. A minimum of 100 fields, selected at random on the sample, were examined and fibers greater than five micrometers in length were counted. The microscopic analysis, that is, fiber count data, was used in conjunction with field sampling data (air flowrates and duration of sampling) to calculate the concentrations of asbestos fibers in air corresponding to each sample in units of fibers, greater than five micrometers in length, per cubic centimeter of air.

This procedure is consistent with the method used by the Occupational Safety and Health Administration in its compliance effort. Data thus obtained were then compared to applicable standards promulgated by the Occupational Safety and Health Administration (OSHA) and by the American Conference of Governmental Industrial Hygienists (ACGIH). The present OSHA and ACGIH standards limit eight-hour, time-weighted average exposures of workers to a concentration of five fibers (greater than five micrometers in length) per cubic centimeter of air. Effective July 1, 1976, the OSHA limit for eight-hour, time-weighted average exposures is scheduled to be reduced to two fibers per cubic centimeter of air. The present OSHA standard also establishes a ceiling (or peak) exposure limit of ten fibers per cubic centimeter of air. On October 9, 1975, OSHA issued proposed rule-making to lower the present standard such that eight-hour, time-weighted average exposures would be limited to 2.5 fiber per cubic centimeter of air, and ceiling exposures measured over a period up to fifteen minutes would be limited to five asbestos fibers per cubic centimeter of air. The proposed standard is based largely on the known carcinogenicity of asbestos to humans.