

8. A responsible person should be assigned the task of supervising maintenance and housekeeping activities. Among other things he should make tests from time to time to make sure that the dust control program is achieving the desired results.

J. - PROVIDE RESPIRATORS - The Conference Committee was of the unanimous opinion that "dust elimination must be given primary consideration in solving the silicosis problem". Nevertheless, when known methods of elimination are not applicable or are ineffective, respirators should be provided as "a last resort and for occasional exposure only. Rotation of personnel under these conditions is advisable." The report definitely states that there will always be places where other methods will be inapplicable and ineffective, and respirators will be required for doing the work, also that there will be situations where respirators will be the primary means of protecting the workmen. The scope of good use of respirators is considerably beyond that of occasional exposure. The need of rotating personnel depends on the type of work done and the supervision given the workmen. In some operations, respirators are as much a part of the workman's equipment as his tools. Certainly, it cannot be expected that a person can wear a respirator for several hours continuously - but how many jobs are there that would require a person to keep the respirator on continuously for an extended period of time. The common practice in the majority of industrial occupations is that the person is intermittently exposed and is afforded many opportunities for the periodic removal of the respiratory protective device. The two general types of respirators which the Committee considered suitable for protection against silica dust are:

- (a) Air-purifying respirators that filter out the dust particles.
- (b) Supplied-air respirators in which dust-free air breathed by the worker comes to him from an uncontaminated outside source.

Most respirator manufacturers have submitted their devices for testing and approval by the U.S. Bureau of Mines, and only those which have been approved should be used.

(a) Air-Purifying Types of Respirators - Of the air-purifying class, the type most commonly used is the mechanical filter respirator for mechanically-generated dust. These respirators give no protection from gases and vapors. They generally consist of half facepieces to which are attached an exhaust valve and a filtering medium that removes the dust from the inhaled air; some are equipped with a filter medium that removes paint mists and some fumes. They are light in weight and inexpensive. Filter pads must be changed at certain intervals, depending on the concentration of dust. Some types restrict the field of vision. The general requirements of a safe and suitable Mechanical filter respirator are (1) adequate protection, (2) reasonable comfort and convenience, (3) an acceptable service life period of protection, (4) easy cleaning and sterilization, and (5) low cost of maintenance in good serviceable condition.

Studies of mechanical filtration by fibrous materials made by such agencies as the United States Bureau of Mines (U.S. Bur. of Mines, Tech. Paper No. 394 (1926) and U.S. Pub. Health Bull. No. 177 (1928)) and the Harvard School of Public Health (Journ. Indust. Hyg. 9, 26 (1927)) revealed that filtering efficiency varies with the particle size and the amount of solid particulate matter retained; also that the resistance to air flow varies with the amount of solid particulate matter retained and the rate of air flow. After all, the fundamental basis for judging the suitability of a respirator is whether or not the amount of dust that is unretained or escapes through the filter under conditions of practical use is below the amount that would be harmful to breathe. This is not related to any percentage efficiency. In order to meet the Bureau of Mines requirements for approval, a respirator must satisfactorily remove