

protection factors less than 10. That is, the fit test procedures are designed to reject respirators that have protection factors less than 10, so these should not be worn by the worker (47 FR 51110-51119). However, when applying statistical computations of a one-sided upper confidence limit for the true percentage of wearers who will experience protection factors less than 10, the results are that many workers do not achieve the acceptable protection. For example, for the dust, fume and mist filters, tested after passing the saccharin fit test, and while wearing the respirator for protection against asbestos under use, exposure, and wearer conditions similar to those existing in the study, one can state with 99% confidence that up to 18% (about 1 in 6) of the users may experience protection factors less than 10. Finally, but equally importantly, OSHA does not believe that the conditions in the study represent the typical respirator program found in use, even in the best situations, because the study created a carefully controlled environment of respirator use. In spite of the typical and excellent respirator program in place during the study, adequate respirator protection was not obtained from many respirator types. This fact, and the unexplained inconsistency in the data, further support OSHA belief that respirators should not be relied upon to provide primary protection to workers.

OSHA recognizes, however, that where engineering and work practice controls cannot reduce exposure below the PEL, respirators must be used. This study suggests that respirators will provide some measure of protection, but uncertainties in the study do not allow it to be used to define respiratory efficiency.

The NIOSH/MSHA respirator certification procedures, described in 30 CFR Part 11, establish classes of respirators. Each class is defined by a set of criteria for the capabilities of the respirator class. OSHA notes that the testing of respirator effectiveness for asbestos (the LASL and DuPont studies) suggest that certain respirators within a class appear to perform better than other respirators within the same class. For example, the 3M 8710 respirator appears to provide better protection than the other respirators in its class as a single-use respirator. OSHA does not believe that it is appropriate to make exceptions for certain respirators within a class of NIOSH/MSHA certified respirators at this time. As noted above, the existing data is not comprehensive and some is inconsistent with the current knowledge of protection

afforded by different respirator types. The current classification system (30 CFR Part 11) has been in place for many years and has provided a degree of quality assurance that cannot be disregarded in light of the existing limited data. Finally, OSHA believes that no respirator reliably achieves the assigned protection factor in practical, routine use, and therefore, respirators are inferior to engineering and work practice controls. At best, the protection factors obtained in the studies show only relative differences between respirators (that is, some may be better than others), but do not show that any respirator provides consistently reliable protection. OSHA feels that further field testing of respirators should continue, so as to provide more definitive information regarding the adequacy of those negative pressure air-purifying respirators not equipped with high efficiency filters. Therefore, OSHA continues to believe that the respirator selection process should be based on the performance of the entire class of respirators and not based on the performance capabilities of selected respirators within a given class. In the final standard OSHA limits the selection of negative pressure half-mask respirators to high efficiency filters only.

Because of the unreliability and physiological distress associated with negative pressure respirators, OSHA has required employers to provide powered, air purifying (positive pressure) respirators (PAPR) to employees who request one, so long as it will provide adequate protection at the level of protection required. Powered air-purifying respirators operated in positive-pressure mode provide greater protection to individuals, especially those who cannot obtain a good face fit on a negative pressure respirator, and will provide greater comfort when a respirator needs to be worn for long periods of time. OSHA believes employees will have a greater incentive to wear respirators if discomfort is minimized.

The standard requires the employer to select respirators in accordance with Table 1 (in the regulatory text) from those jointly approved by NIOSH/MSHA. The respirator selection table will enable the employer to provide the type of respirator which affords the proper degree of protection based on the airborne concentration of asbestos. To comply with this requirement the employer must perform initial monitoring as described in paragraph (d)(2) to accurately determine the airborne concentration of asbestos to which employees may be exposed.

While the employer must select the appropriate respirator from the table on the basis of the airborne concentration of asbestos, he may always select a respirator providing greater protection, that is, one prescribed for higher concentrations of asbestos than present in his workplace.

Recently published field studies as well as environmental chamber studies conducted by the Los Alamos National Laboratory indicated that the tight fitting powered air-purifying respirators (PAPRs) offer more protection than the loose fitting PAPRs. Since the affected employees are seldom exposed to more than 100 times the permissible exposure limit for asbestos, a single classification which covers all the PAPRs and continuous flow supplied-air respirators is used for simplification of the respirator selection table.

The above explanation on respirator selection provides the rationale for OSHA's deletion of the section on "spraying, demolition, or removal" which appears in the current standard.

This eliminates any ambiguity which existed previously regarding the kind of respirator required to protect employees engaged in spraying, demolition and removal operations. Furthermore, the final standard is consistent with current enforcement policy.

The standard further requires that the employer institute a respiratory protection program in accordance with paragraph (g)(3). This section contains basic requirements for proper selection, use, cleaning and maintenance of respirators. The standard also requires that respirators be properly cleaned and filters replaced when necessary.

The employer is also required to assure that the respirator assigned will fit properly. Proper fit of the respirator is critical. As a negative pressure is created within the facepiece when the wearer breathes, unfiltered contaminated air may enter the facepiece if gaps exist. Obtaining a proper fit on each employee may require the employer to provide two or three different mask styles. In order to help assure that respirators will provide employees with the necessary protection, the standard requires employers to periodically perform either qualitative (QLFT) or quantitative (QNFT) fit tests on all users of half-mask negative pressure respirators. Although the Agency feels that QNFT is more accurate than QLFT, it is OSHA's opinion the QLFT can provide the same assurance of employee health protection as QNFT in instances where protection factors up to 10 are required, and when specific protocols are followed for half-