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# Stricter Respiratory Protection Is Required by New Asbestos Rules

*NIOSH/EPA guidelines call for even lower exposure limits than the tough new standards*

Regulation of workplace exposure to asbestos has been a controversial issue for several years—both legally and technically. A host of federal agencies and contenders from all corners of labor and industry participated in the debate, creating confusion about proper respiratory protection for employees involved in asbestos-related work.

The Occupational Safety and Health Administration sought to reduce the controversy and consolidate conflicting viewpoints by issuing its long-awaited amendment and new standard for exposure to asbestos (along with termolite, anthophylite and actinolite) on June 20, 1986. The standards were immediately challenged in federal court by several parties.

While OSHA defends its 7-month-old asbestos standards, the asbestos abatement industry and safety professionals must comply by implementing new respiratory protection programs, among other measures, which the standards require.

OSHA regulations are and always have been the only legally binding regulations regarding the use of respiratory devices in non-government asbestos abatement work.

Exceptions are state and local or individual job specifications that are more stringent than OSHA requirements, and Environmental Protection Agency regulations concerning federal and state employees not covered by the OSH Act.

**PEL REDUCED.** The new OSHA standards, announced last June and effective since last July, set the permissible exposure limit (PEL) for asbestos at 0.2 fibers per cubic centimeter (f/cc) over an eight-hour time-weighted average—a tenfold reduction from the previous 2.0 f/cc PEL that had been in effect since 1976.

In addition to the PEL, the standards specify a 0.1 f/cc "action level," which requires a series of monitoring, worker training and medical surveillance programs.

There are actually two standards: an amended one for general industry (29 CFR 1910.1001) and a completely new one for construction (29 CFR 1926.58)—the first health standard issued solely for the construction industry.

Construction, as defined by the 1926.58 standard, includes (but is not limited to) structural demolition or salvage; removal or encapsulation of materials; construction, alteration, repair, maintenance or renovation of structures; installation of products containing asbestos; asbestos "spill" or emergency cleanup; transportation, disposal and storage or containment of asbestos on-site.

The construction standard differs from the general industry standard mainly by outlining a number of job site requirements.

These requirements include a "competent person" to supervise the site; negative pressure enclosures; clearly marked regulated areas (where exposures are above the PEL and where only authorized personnel wearing appropriate respiratory protection are permitted); and decontamination areas, including clean rooms, shower areas, equipment rooms and decontamination entry/exit procedures.

**COMBINED SOLUTIONS.** Both standards generally require a combina-

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## Table for Respiratory Protection

| Airborne Concentration | Required Respirator |
|---|---|
| Not in excess of: | |
| A. 2f/cc (10 x PEL) | A. Half-mask air-purifying respirator equipped with high efficiency filters. |
| B. 10f/cc (50 x PEL) | B. Full facepiece air-purifying respirator equipped with high efficiency filters. |
| C. 20f/cc (100 x PEL) | C1. Any powered air-purifying respirator equipped with high efficiency filters<br>C2. Any supplied-air respirator operated in continuous flow mode. |
| D. 200 f/cc (1000 x PEL) | D. Full facepiece supplied-air respirator operated in pressure demand mode. |
| E. Greater than 200f/cc (1000 x PEL) or unknown concentration | E. Full facepiece supplied-air respirator operated in pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus.* |

*Pressure demand airline respirators with auxiliary pressure demand self-contained breathing apparatus are combination units consisting of a supplied air respirator operated in the pressure-demand mode with a small compressed air cylinder included within the system. The cylinder acts as an escape device, allowing the user to switch to the cylinder in the event of an air flow reduction or cessation of the hose supplied air.

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tion of engineering controls—where practical—and work procedures to reduce exposure to within the PEL.

Both standards call for the use of respirators where engineering controls and work practices cannot feasibly reduce exposure to the PEL.

The adapted table from the new standards on page 39 shows the types of respirators required under the new standards vis-a-vis airborne concentrations of asbestos fibers.

While the table shows required respirators for various levels of asbestos exposure, only those intimately familiar with the requirements of the *old* standard can recognize immediately the major changes in respirator selection imposed by the new standard. Two of the key differences are these:

- Respirators approved by NIOSH/MSHA for dusts and mists and asbestos-containing dusts and mists (that is, approved for dusts and mists having a TWA *not less* than 0.05 mg/m$^3$) are no longer legally acceptable for use against asbestos since 0.2 f/cc converts to a concentration lower than 0.05 mg/m$^3$.

**LOWEST PROTECTION.** Now the lowest level of acceptable protection is the half-mask air-purifying respirator with high efficiency filter (approved for dusts, fumes and mists having a TWA *less* than 0.05 mg/m$^3$). This change makes filters and disposable respirators of the "non-high efficiency type" unacceptable to OSHA for asbestos protection.

- New levels of protection have been established for certain categories of respirators. From 10 to 50 times the PEL, full facepiece, negative-pressure respirators with high efficiency filters are the minimum protection accepted. Between 50 and 100 times the PEL, either powered air-purifying respirators with high efficiency filters or continuous flow airline respirators are the minimum accepted.

This represents a reduction in the protection factors for continuous flow airline respirators. Now, only fullface pressure demand airline respirators (or presumably self-contained breathing apparatus) are acceptable for concentrations more than 100 times the PEL.

Whether OSHA's asbestos standards—as written—will survive the various court challenges now in progress remains to be seen. Some observers anticipate at least one revision—the addition of a short-term exposure limit (STEL) to the standard.

A STEL would specify procedures and appropriate respiratory protection for workers exposed to potentially high levels of asbestos in jobs of short duration. Meanwhile, EPA, with NIOSH-written guidelines, is recommending standards for respiratory protection that are even more stringent than the OSHA standards.

**FEDERAL RECOMMENDATIONS.** In the newly published *A Guide to Respiratory Protection for the Asbestos Abatement Industry*, NIOSH and EPA recommend a full facepiece, pressure-demand type "C" airline respirator with either emergency egress bottle or high efficiency backup filter for exposures above 0.1 f/cc.

This emergency egress bottle type of respiratory system already is available from a number of major respirator manufacturers. The high efficiency backup filter type, designed specifically for asbestos abatement work, is under accelerated development by a number of major respirator manufacturers. One model already has received NIOSH approval.

The new OSHA standards specify higher levels of respiratory protection for workers than did the previous standard. However, the new standards still are noticeably less stringent than the joint NIOSH/EPA respiratory guidance document.

While both sources continue to stimulate improvements in respirator technology and programs, it seems obvious that there will not be a unified OSHA, NIOSH and EPA position on respirators in the near future.

Thus, professionals within the asbestos detection and control industry still will be faced with some tough decisions concerning respirator selection and use. ■





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