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Technical Bulletin

OSHA Silica Rule for Exposure to Respirable Crystalline Silica

On September 23, 2017 OSHA will begin enforcing the new Crystalline Silica Rule for worker permissible exposure limit (PEL) for crystalline silica over an 8-hour period. The standard requires employers to limit worker exposures to respirable crystalline silica and to take other steps to protect workers.

OSHA is issuing two standards to protect workers from exposure to respirable crystalline silica, one for construction, and the other for general industry and maritime. This allows employers to tailor solutions to the specific conditions in their workplaces. The construction standard does not apply where exposures will remain low under any foreseeable conditions; for example, when only performing tasks such as mixing mortar; pouring concrete footers, slab foundation and foundation walls; and removing concrete formwork.

The construction standard requires employers to limit worker exposures to respirable crystalline silica and to take other steps to protect workers. The standard provides flexible alternatives, especially useful for small employers. Employers can either use a control method or they can measure workers' exposure to silica and independently decide which dust controls work best to limit exposures to the PEL in their workplaces.

Key Provisions

1. Reduces the permissible exposure limit (PEL) for respirable crystalline silica from 100 to 50 $\mu\text{g}/\text{m}^3$, averaged over an 8-hour day.
2. Requires employers to: use engineering controls (such as water or ventilation) to limit worker exposure to the PEL; provide respirators when engineering controls cannot adequately limit exposure; limit worker access to high exposure areas; develop a written exposure control plan, offer medical exams to highly exposed workers, and train workers on silica risks and how to limit exposures.

Compliance Measures

1. Measure the amount of silica that workers are exposed to in an 8-hour day to determine if the level is at or above 25 $\mu\text{g}/\text{m}^3$ micrograms of silica per cubic meter of air (action level).
2. If the levels are at or above action level, protect workers from respirable crystalline silica exposures above the permissible exposure limit (PEL) of 50 $\mu\text{g}/\text{m}^3$, averaged over an 8-hour day.
3. Use dust controls to protect workers from silica exposures above the PEL.
4. Provide respirators to workers when dust controls cannot limit exposures to the PEL.
5. Provide medical exams to monitor highly exposed workers and give them information about their lung health.

Conclusions

Carboline has tested the following Southwest Fireproofing products: Type 5GP, Type 5MD and Type 7GP to this new requirement and have found that all PELs are well below the acceptable permissible exposure limit. All samples were collected and analyzed according to NIOSH (National Institute of Occupational Safety and Health Administration) Method 7500. Pre-weighed mixed cellulose ester membrane sampling cassettes specifically designed for metals analysis for OSHA air sampling were used to collect the air samples. All samples were collected in the workers breathing zone for spray, mixing, cleaning, etc. during a typical 8-hour work day at various construction sites.

According to the laboratory analytical results, all personal breathing zone air sample results for the above referenced Southwest Fireproofing products were less than 50 µg/m³ which is below the OSHA Permissible Exposure Limit (PEL) for respirable silica.

For safety requirements, follow the measures stated on Carboline's SDS (safety data sheet – latest edition) for recommended PPE (personal protective equipment).

RESPIRATORY PROTECTION: Respirator with a dust filter. Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust). Use NIOSH approved respiratory protection.

EYE PROTECTION: Safety glasses with side-shields.

HAND PROTECTION: For prolonged or repeated contact use protective gloves.

OTHER PROTECTIVE EQUIPMENT: Ensure that eyewash stations and safety showers are close to the workstation location.

ENGINEERING CONTROLS: Avoid dust accumulation in enclosed space.