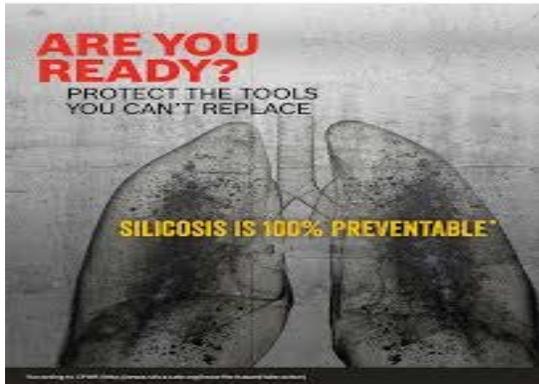


SILICA FACTS

BREATHE EASIER



Crystalline Silica Standard for Construction 1926.1153

Workers who are exposed to respirable crystalline silica dust are at increased risk of developing serious silica-related diseases. OSHA's standard requires employers to take steps to protect workers from exposure to respirable crystalline silica.

What is Respirable Crystalline Silica?

Crystalline silica is a common mineral that is found in construction materials such as sand, stone, concrete, brick, and mortar. When workers cut, grind, drill, or crush materials that contain crystalline silica, very small dust particles are created. These tiny particles (known as "respirable" particles) can travel deep into workers' lungs and cause silicosis, an incurable and sometimes deadly lung disease. Respirable crystalline silica also causes lung cancer, other potentially debilitating respiratory diseases such as chronic obstructive pulmonary disease, and kidney disease. In most cases, these diseases occur after years of exposure to respirable crystalline silica.

How are Construction Workers Exposed to Respirable Crystalline Silica?

Exposure to respirable crystalline silica can occur during common construction tasks, such as using masonry saws, grinders, drills, jackhammers and handheld powered chipping tools; operating vehicle-mounted drilling rigs; milling; operating crushing machines; using heavy equipment for demolition or certain other tasks; and during abrasive blasting and tunneling operations. About two million construction workers are exposed to respirable crystalline silica in over 600,000 workplaces

What Does the Standard Require?

The Subcontractor is responsible for keeping worker exposures to crystalline silica at, or below, the ACGIH TLV (0.025 mg/m³, respirable fraction, which is ½ of the OSHA PEL).

Engineering controls such as wet methods or ventilation must be employed whenever dust-producing activities are anticipated. Compliance with the TLV will require wet methods, local exhaust ventilation and / or other engineering controls. Control methods described in Table 1 of 1926.1153 may not be sufficient to control respirable silica concentrations to “at or below” the TLV. Use of engineering and control methods described in Table 1 as well as respiratory protection is required until the Subcontractor can demonstrate through personal air monitoring that exposures are at or below the TLV.

What Else Does the Standard Require?

Regardless of which exposure control method is used, all construction subcontractors covered by the standard are required to:

- Establish and implement a written exposure control plan that identifies tasks that involve exposure and methods used to protect workers, including procedures to restrict access to work areas where high exposures may occur;
- Designate a competent person to implement the written exposure control plan;
- Restrict housekeeping practices that expose workers to silica, such as use of compressed air without a ventilation system to capture the dust and dry sweeping, where effective, safe alternatives are available;
- Offer medical exams including chest X-rays and lung function tests—every three years for workers who are required by the standard wear a respirator for 30 or more days per year;
- Train workers on the health effects of silica exposure, workplace tasks that can expose them to silica, and ways to limit exposure;
- Keep records of workers’ silica exposure and medical exams and;
- Update the written exposure control plan annually.

NREL follows OSHA Table 1 for engineering controls only.

The permissible exposure limit (PEL) is a legal limit in the United States for exposure of an employee to a chemical substance or physical agent. PELs are established by the Occupational Safety and Health Administration (OSHA).

PEL is the maximum upper exposure legal limit to a hazardous substance exposure that an employee can be exposed to in an 8-hour shift.

Threshold Limit Value (TLV) is a reserved term from the American Conference of Governmental Industrial Hygienists. Unless a state or the federal government adopts a hazardous chemical TLV, it is not a regulatory requirement but a recommended guideline. DOE follows TLV’s.

TLVs are the maximum daily (8-hour shift) exposure to an airborne concentration of a hazardous material that healthy workers can be exposed to each workday (assuming a 40-hour workweek) without experiencing significant adverse occupational safety and health effects over a working lifetime.