

# CRYSTALLINE SILICA

INFORMATION AND RESOURCES ON THE DANGERS OF RESPIRABLE CRYSTALLINE SILICA

Respirable crystalline silica is created when cutting, sawing, grinding, drilling, and crushing stone, rock, concrete, brick, block, and mortar. The respirable dust is formed when those materials are broken or cut, releasing particles that can be inhaled deep into the lungs. Respirable crystalline silica can potentially causes lung cancer or other 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.

OSHA has created regulations to protect workers from exposure to this material. There are rules for both general industry and construction industry work activities:

**General industry: 1910.1053 and Construction: 1926.1053**

The employer is responsible for monitoring and controlling exposure, medical monitoring, training and recordkeeping.

In construction, employers must designate a competent person to implement the program.

## EXPOSURE LIMITS

The action level (AL), concentration at which the employer must begin taking actions to limit exposure is **25 micrograms per cubic meter of air ( $\mu\text{g}/\text{M}^3$ )** as an eight-hour time weighted average (TWA). The permissible exposure limit (PEL) is **50  $\mu\text{g}/\text{M}^3$**  as an eight-hour time weighted average.



## EMPLOYER REQUIREMENTS

- **Exposure Monitoring:** Where potential for exposure exists, employers are required to obtain objective data, have historical exposure monitoring results or must perform air monitoring to assess exposure. Exposure monitoring must be performed using sampling methods that provide a 95% confidence rating at the action limit. Employee representatives must be offered the opportunity to observe the monitoring and employees must be given the monitoring results, within 15 days of their completion, as a letter, or be posted in the workplace.
- **Exposure Controls:** Any portion of the workplace where the PEL is exceeded must be marked as a regulated area to prevent entrance by employees that do not know how to protect themselves from exposure. Where exposures are above the PEL the employer must develop, and implement a written exposure control plan that describes how they will comply with the requirements of the regulation. The employer must use the hierarchy of controls to reduce exposure as low as possible, then may use PPE to protect employees if the exposures could not be reduced below the action limit. That plan must be reviewed as necessary and at least annually. Wet wiping and high efficiency particulate air (HEPA) filtered vacuums are the preferred means to clean the work area from dust containing crystalline silica.
- **Medical Monitoring:** For employees that are exposed above the action limit for more than 30 days per year the employer must establish a medical monitoring program. The program must be operated by a qualified licensed health care professional. Employees must receive a medical evaluation within 30 days of working in the area and every three years thereafter. The employee must be given a written report of the results of the examination within 30 days.
- **Crystalline Silica Hazard Communication Training:** The employer is required to include information on crystalline silica in their Hazard Communication Program and employees must be also trained to know the requirements of the regulation and the purpose and operation of the medical monitoring program. The employer must also make a copy of the regulation readily available to employees at no cost.
- **Recordkeeping:** The employer must maintain the records developed under this regulation including the current or historical air monitoring documentation, any objective data used to estimate exposure and the information developed for and as a part of the medical monitoring. The exposure monitoring data must be maintained for 30 years and the medical monitoring data for the duration of employment plus 30 years.

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