

Technical Data Bulletin

Technical Data Bulletin 242

Respirable Crystalline Silica in Construction – 29 CFR 1926.1153

On March 25, 2016 US OSHA published its Respirable Crystalline Silica in Construction regulations - 29 CFR 1926.1153. This document is a summary of the regulation. The regulation is detailed and the reader is strongly encouraged to review and understand the entire regulation and preamble prior to work with crystalline silica. The regulation, preamble, US OSHA Fact Sheet on Construction and FAQ are available on the OSHA website and should be consulted to help ensure a complete understanding of this regulation. (www.OSHA.gov). The term “silica” will be used in this document for convenience to represent “respirable crystalline silica”.

Scope – the regulation applies to all US construction related occupational silica exposure unless the contractor can show worker exposures will remain below 25 micrograms per cubic meter of air (ug/m³) as an 8 hour time-weighted average (TWA) under all foreseeable conditions. Fused and amorphous silica are not considered under this regulation.

Exposure Limits – Permissible Exposure Limit (PEL) is 50 ug/m³ TWA. The Action Level (AL) is 25 ug/m³ TWA. OSHA did not establish a threshold concentration exemption for silica containing materials.

Specified Exposure Control Methods: Table 1 – Table 1 of the regulation lists 18 different tools/tasks along with specified engineering and work practice controls and respirator selection for each. Contractors are required to “fully and properly” implement these controls unless they use the alternative exposure assessment methods (see below). Contractors that “fully and properly” utilize Table 1 controls will be considered in compliance with:

- The PEL and exempt from exposure assessment requirements.
- The respiratory protection requirements of 29 CFR 1926.1153(e)(1) and 29 CFR 1910.134(d)(1)(iii) and (d)(3). Respirators must be used in compliance with all other sections of 29 CFR 1910.134 and the respirator manufacturer’s user instructions.

Table 1 footnotes must be followed to ensure protection of the worker and compliance with the regulation. Contractors who utilize Table 1 must still comply with other requirements of this regulation.

Exposure Control Methods: Alternative Assessment Methods - For tasks not listed in Table 1, or if the controls listed are not “fully and properly” implemented, contractors must conduct exposure assessments for each worker who may be exposed above the AL and ensure they are not exposed to airborne concentrations above the PEL. Exposure can be assessed by either:

- Performance method: a combination of air monitoring and objective data sufficient to accurately determine worker exposure. Objective data may be air monitoring results from industry wide surveys or calculations based on specific material composition and/or process, task or activity. The data must reflect expected or higher exposure potential for the processes, materials, control methods and environmental conditions at the current worksite.
- Scheduled monitoring method: the contractor will conduct initial air monitoring to determine worker exposure. Based on those results, exposure assessments:
 - Below the Action Level (AL), air monitoring may be discontinued.
 - At or above the AL but below the PEL, monitoring must be repeated every 6 months.
 - At or above the PEL, monitoring must be repeated every 3 months.
 - Monitoring may be reduced or discontinued when 2 consecutive samples at least seven days apart are below the PEL or AL respectively.

In all cases, exposures must be reassessed whenever there are significant changes to the process, materials, production, work practices or there are other reasons to believe that new or additional exposures may be occurring above the AL. Workers must be notified individually, in writing, of the assessment results. If the results are above the PEL, the notification must include actions to be taken to reduce exposure.

Exposures above the PEL must be controlled first by engineering (e.g. wet cutting, HEPA filtered local exhaust ventilation) and work practice controls. If those are infeasible or insufficient to reduce exposure below the PEL, respiratory protection must be used.

Summary of Other Selected Requirements:

- Abrasive blasting operations must also comply with requirements in 29 CFR 1926.57.
- Respiratory protection – use of respirators must comply with requirements in 29 CFR 1910.134.
- Housekeeping – dry sweeping and compressed air may not be used for cleaning unless no alternative is feasible. Options include wet sweeping and HEPA-filtered vacuuming.
- Competent Person – a competent person must be designated and have the knowledge and ability to fulfill the responsibilities in 29 CFR 1926.1153(g). This includes making regular inspections of the worksite, materials, equipment and control measures in use to ensure the written exposure control plan is properly implemented.
- Written exposure control plan – the plan will detail tasks that involve exposure to silica; control methods to reduce exposure; housekeeping procedures; procedures to restrict access to areas to reduce the exposure to other workers and must identify the silica competent person.
- Medical Surveillance – medical surveillance program must be made available to all workers required to wear a respirator more than 30 days per year. The initial examination includes a work history, physical exam, chest x-ray, pulmonary function and latent TB infection tests, and any other tests per the examining health care provider. Section 29 CFR 1926.1153(h) and Appendix B of the regulation gives further details on required examinations.
- Worker training and information – workers must be trained per the Hazard Communication Standard (29 CFR 1910.1200). Also workers must be able to demonstrate understanding of:
 - Health hazards from excessive exposure to silica.

- Tasks that could result in exposure to silica.
- Specific controls implemented to reduce worker exposure.
- Contents of 29 CFR 1926.1153.
- Who the jobsite silica competent person is.
- Purpose and description of the medical surveillance program.
- Recordkeeping - including air monitoring and objective data used for assessments and medical surveillance records. Records will be maintained per 29 CFR 1910.1020.

All requirements except 29 CFR 1926.1153(d)(2)(v) – methods of air sample analysis, come into force on June 23, 2017. Appendix A gives mandatory requirements for sample analysis. Use of a properly accredited analytical laboratory (e.g. American Industrial Hygiene Association Laboratory Accreditation Program <http://www.aihaaccreditedlabs.org>) can assist in complying with this requirement.

All sections are in force on June 23, 2018.

3M Technical Data Bulletin # 210, gives suggested respiratory and personal protective equipment matched to the Table 1 Equipment/Task list that contractors may wish to consider.



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