



County of Henrico
Department of Emergency
Management &
Workplace Safety

Verification	Originator	Revised	Issued
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Safety Manual

Chapter 27 Respirable Crystalline Silica Safety

Area of application:	County of Henrico General Government & Schools	
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001	07/28/2022	Aligned EMWS titles and terminology. Non-substantive changes.
002	07/28/2023	Removed "Dust" from chapter title

Purpose:

This chapter establishes guidelines for all County of Henrico departments to protect employees that perform work with the potential for respirable crystalline silica exposure. Additionally, the Silica Safety Program and Exposure Control Plan template that accompanies this chapter helps departments meet the requirements of Occupational Safety and Health Administration and Virginia Occupational Safety and Health program (OSHA /VOSH) standards 29 CFR 1910.1053 (General Industry) and 29 CFR 1926.1153 (Construction). The template is available on the County of Henrico web page on the Employee Portal under "safety". To avoid duplication, this chapter provides an overview of the Respirable Crystalline Silica Standards for employees covered by it, as well as awareness for county employees who are not covered by the standard. Note: The template should be modified to meet the needs of each department. If assistance is needed, contact the Department of Emergency Management & Workplace Safety (EMWS) at 804-501-5162.

Scope:

This chapter applies to all Departments, assigned facilities, and all work sites located throughout the County where the potential for silica dust exposure is present, or may be present.

Crystalline silica is a common mineral that is found in materials such as stone, artificial stone, and sand. When workers cut, grind, or drill materials that contain crystalline silica, or use industrial sand, they can be exposed to very small silica dust particles. 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 dust.

Program Administration:

With guidance from EMWS, each affected department will establish a written Silica Safety Program and Exposure Control Plan specific to its work tasks as outlined in the template and for any current or anticipated silica exposure hazards. Each department will ensure that new hires receive training specific to their duties prior to initial assignment and will complete additional training as required to meet the OSHA /VOSH standards.

Respirable Silica Construction Standard, 29 CFR 1926.1153:



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The Construction Standard addresses the requirements and methods of exposure control through Table 1 and silica exposure air sampling.

Table 1 of the Standard:

This table, found in the Silica Safety Program template on pages 5-9, lists common construction tasks and the approved methods to control silica dust exposures. If Departments follow the guidelines in Table 1, they will not be required to conduct sampling and will not be subject to the Personal Exposure Limit (PEL) requirement. A few tasks listed in Table 1 require workers to wear tight-fitting respirators during the work, or if the employee performs the work for more than four hours. Departments with employees who need to wear tight-fitting respirators shall comply with the Respiratory Protection Standard, 29 CFR 1910.134, which means developing a written respiratory protection program as outlined in Chapter 14 of this Safety Manual.

If Table 1 of the Construction Standard Cannot be Followed:

Whenever Departments cannot follow the requirements of Table 1, they must comply with Standards regarding the Silica action level and PEL. Additional silica sampling and the monitoring requirements for General Industry Standard will be required (29 CFR 1910.1053). Employers must conduct exposure monitoring for silica dust if the potential for exposure could be at or above an action level of 25 µm³ (micrograms per cubic meter of air), as averaged over an 8-hour day. The PEL is 50 µm³, as averaged over an 8-hour day. Affected employees must be notified in writing of the sampling results. If sampling results are above the PEL, employee notification must include exposure control methods. If results are above the action level but below the PEL, sampling will need to occur every six months until exposures are below the *action* level for two consecutive measurements. If results are above the PEL, sampling will need to occur every three months until exposures are below the action level for two consecutive samplings. Unless the potential for silica exposure is 0%, even if a slight potential for silica exposures exist, it's best to conduct the sampling to know what the exposure levels for those tasks are. Documentation of exposure assessments are very important for recordkeeping and shows due diligence with compliance to the standard. In the event that Departments find exposure limits are above the PEL and are not using Table 1, they must protect workers from exposure by another approved method. When typical dust control methods don't work, tight-fitting respirators designed to protect workers from silica dust are required.

Other Requirements under the Silica Construction Standard:

Medical Exams — Medical exams that include chest X-rays and lung function tests must be offered to workers who are required by the standard to wear respirators for 30 or more days per year. These exams must be offered every three years.

Competent Person — Departments will need to designate a competent person to implement the Silica Exposure Control Plan (pages 19-20 of the Program template).

Restricted Access — Procedures for how departments will restrict access to work areas where high silica dust exposures might occur must be included in the written exposure control plan.

General Industry Respirable Silica Standard, 29 CFR 1910.1053:

The OSHA /VOSH silica standard for general industry attempts to prove silica exposures are maintained below certain levels. As a result, the general industry standard focuses on sampling. The



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sampling methods are the same as listed above in the Construction Standard since there is no requirement to follow Table 1 for general industry work.

Other Requirements for the Silica General Industry Standard:

Dust Controls — Dust controls must be used to protect employees from exposures above the PEL. In most cases, wet methods and ventilation can be used to aid in this. Again, appropriate exposure sampling will determine the effectiveness of the dust controls.

Respirators — Whenever dust controls do not keep exposures below the PEL, appropriate respirators are required. A written Respiratory Protection Program (see Chapter 14 of this Safety Manual) must be implemented.

Medical Exams — Medical exams including chest X-rays and lung function tests must be offered to employees who are, or might be, exposed at or above the action level ($25 \mu\text{m}^3$) for 30 or more days per year. These exams must be offered every three years.

Warning Signs — Warning signs must be posted at or near work-zone entrances where exposures above the silica PEL may occur.

If assistance is needed for compliance with Respirable Crystalline Silicas standards as outlined in this chapter, contact EMWS at 804-501-5162.

Disclaimer:

Although every effort has been made to ensure this Chapter addresses all applicable regulations, it is the responsibility of each department to maintain compliance.