



Crystalline Silica Standard

OSHA Crystalline Silica Standard

- 29 CFR 1926.1153
- Construction Standards
- Rule adopted by Virginia in December 2016
- **Lowered the Permissible Exposure Limit from 250 ug/m³ to 50 ug/m³)**
- Full Compliance by June 23, 2017
- The rule will impact work practices associated with VDOT various divisions



What is Crystalline Silica?

- Is naturally occurring mineral compound that is found in many materials on construction sites
- Is basic component of sand, clay, granite and stone raw materials
- Is used to manufacture variety of products, including concrete, brick, tile, porcelain, pottery, glass, and abrasives
- Main impact for VDOT is its presence in concrete and asphalt



Main Requirements

- **Engineering Controls/Work Practices to limit exposures-Typically Water, HEPA, Isolation (Cab)**
- **Written Exposure Control Plan for activities that generated crystalline silica dust**
- **Designation of a Competent Person-Superintendent, supervisor, crew leader, etc.**
- **Training**
- **Respiratory Protection / Medically monitoring for staff conducting activities where exposures exceed PEL**



Silica Standard

VDOT Divisions & Sections

- **Bridge Maintenance**
- **Road Maintenance**
- **Materials Division**
- **Tunnel Maintenance**
- **Regional Operations**
- **Facilities**
- **Construction Inspectors-Awareness**



Applicability of the Silica Standard within VDOT Operations

VDOT staff conducts many activities that may generate silica dust. Mainly associated with asphalt and concrete:

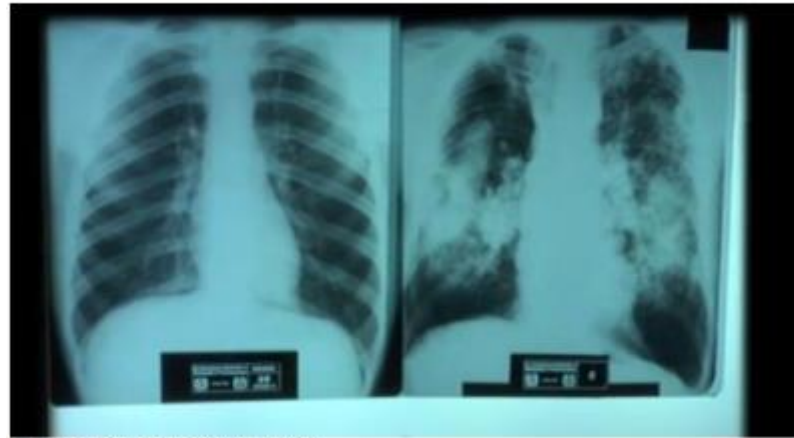
- Abrasive blasting of concrete beams
- Saw Cutting
- Jack hammering
- Drilling & Chipping
- Coring
- Milling & Grinding
- Chip sealing- Roller
- Hydraulic breaker (Hoe Ram)
- Grading and excavation of silica containing materials



Silica Exposure & Health Effects

Exposure to respirable crystalline silica can cause:

- **Silicosis**
- **Lung Cancer**
- **Tuberculosis**
- **Chronic obstructive pulmonary disorder (COPD)**
- **Kidney Disease**



Healthy lungs (left) vs. silicosis (right)

Construction Table 1 Specified Exposure Control Methods

<https://www.osha.gov/silica/SilicaConstructionRegText.pdf>

- **Table 1 in the Standard lists many of the activities VDOT staff conducts, along with the engineering controls (water application or HEPA vac), work practices and where needed respiratory protection required to prevent exposure**
- **Alternative Exposure Control Methods**
 - **Conduct exposure assessments for employees associated with tasks not listed in Table 1**

Table 1

TABLE 1: SPECIFIED EXPOSURE CONTROL METHODS WHEN WORKING WITH MATERIALS CONTAINING CRYSTALLINE SILICA			
Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours /shift	> 4 hours /shift
(iv) Walk-behind saws	<p>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <ul style="list-style-type: none"> – When used outdoors. – When used indoors or in an enclosed area. 	<p>None</p> <p>APF 10</p>	<p>None</p> <p>APF 10</p>