

**Crystalline Silica
Review of OSHA Standard**





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OSHA Standard

- 29 CFR 1926.1153
- Final Rule FR Vol. 81 No. 58 Page 16876
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THRESHOLD LIMIT VALUES OF AIRBORNE CONTAMINANTS FOR CONSTRUCTION—Continued

Substance	CAS No. ¹	ppm ^{2,3}	mg/m ^{3,4,5}	Skin designation
Cristobalite; see 1926.1153	14464-46-1			
Quartz; see 1926.1153 ⁶	14808-60-7			
Tripoli (as quartz); see 1926.1153 ⁶	1317-95-9			
Tridymite; see 1926.1153	15468-32-3			

MINERAL DUSTS

SILICA, Crystalline	250 ⁽⁴⁾
Quartz. Threshold Limit calculated from the formula ⁽¹⁾	% SiO ₂ +5

OSHA Standard

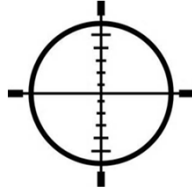
29 CFR 1926.1153

- (a) Scope and Application
- (b) Definitions
- (c) Specified Exposure Control Methods
- (d) Alternative Exposure Control Methods
- (e) Respiratory Protection
- (f) Housekeeping
- (g) Written Exposure Control Plan
- (h) Medical Surveillance
- (i) Communication of Respirable Crystalline Silica Hazards to Employees
- (j) Recordkeeping
- (k) Dates
- Appendix A – Methods of Sample Analysis
- Appendix B – Medical Surveillance Guidelines

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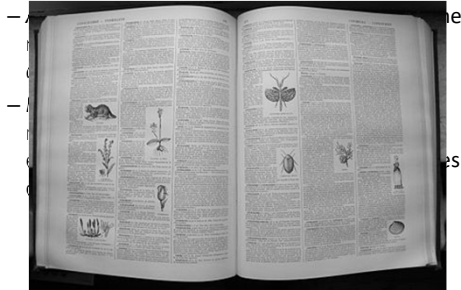
(a) Scope and Application

- All SiO₂ exposure in construction
- Except exposures below the action level (25 ug/m³ as 8-hr TWA)



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(b) Definitions



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- *Respirable crystalline silica* means quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle-size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality—Particle Size Fraction Definitions for Health-Related Sampling.



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(c) Specified Exposure Control Methods

• Table 1

Equipment/task	Engineering and work practice control methods	Required Respirator APF	
		≤4 hours per shift	>4 hours per shift
(i) Stationary masonry saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions	None	None.

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(c) Table 1

Equipment/task	Engineering and work practice control methods	Required Respirator APF	
		≤4 hours per shift	>4 hours per shift
(ii) Handheld power saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions:		
	—When used outdoors	None	APF 10.
	—When used indoors or in an enclosed area	APF 10	APF 10.

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- (c) Table 1
- iii) Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)
- (iv) Walk-behind saws
- (v) Drivable saws
- (vi) Rig-mounted core saws or drills
- (vii) Handheld and stand-mounted drills (including impact and rotary hammer drills)

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- (c) Table 1
- (viii) Dowel drilling rigs for concrete
- (ix) Vehicle-mounted drilling rigs for rock and concrete
- (x) Jackhammers and handheld powered chipping tools
- (xi) Handheld grinders for mortar removal (*i.e.*, tuckpointing)

- (c) Table 1
- (xii) Handheld grinders for uses other than mortar removal
- (xiii) Walk-behind milling machines and floor grinders
- (xiv) Small drivable milling machines (less than half-lane
- (xv) Large drivable milling machines (half-lane and larger)

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- (c) Table 1
- (xvi) Crushing machines
- (xvii) Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials

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- (c) Table 1
- (xviii) Heavy equipment and utility vehicles for tasks such as grading and excavating but not including: Demolishing, abrading, or fracturing silica-containing materials

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- (d) Alternate Controls
 - Applies to tasks not in Table 1.
 - PEL is 50 ug/m³ Action Level (AL) is 25 ug/m³
 - Initial monitoring is required
 - Discontinue if <AL
 - Every 6 months if >AL but <PEL
 - Every 3 months if >PEL

OSHA Standard

(d) (3) Methods of Compliance

- Engineering Controls
- Work Practice Controls
- Respiratory protection if engineering and work practice controls are insufficient
- Comply with 29 CFR 1926.57 "Ventilation" during abrasive blasting that impacts either silica grit or substrate

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(e) Respiratory Protection

- Not required if doing a Table 1 task that does not list PPE.
- Must have written respiratory protection program that complies with 29 CFR 1910.134.
- Half face / P100 – up to 500 ug/m³
- Full face / P100 – up to 2,500 ug/m³
- Full-face PAPR / P100 – up to 50,000 ug/m³

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(f) Housekeeping

- No dry sweeping
- Do not blow dust with compressed air except if it is done in conjunction with ventilation system that captures dust.

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(g) Written Exposure Control Plan

- Description of tasks
- Engineering controls, work practices, PPE
- Housekeeping procedures
- Method to limit access to work area

Review annually

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(h) Medical Surveillance

- Required for workers using respirator >30 days per year.
- Initial exam within 30 days of assignment
 - Work history
 - Physical exam
 - Chest X-Ray
 - Pulmonary Function Test (PFT)
 - Tuberculosis test
 - Other as recommended by doctor

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(h) Medical Surveillance

- Periodic exam – once every 3 years
- Info on what to tell physician and what physician should tell employee and employer. You should not get a diagnostic medical report, just acknowledgment of any restrictions on work.

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- (i) Communication of Hazards
 - Health hazards associated with exposure to crystalline silica;
 - Specific tasks in the workplace that could result in exposure to respirable crystalline silica;
 - Specific measures the employer has implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respirators to be used;
 - The contents of this section;
 - The identity of the competent person designated by the employer in accordance with paragraph (g)(4) of this section; and
 - The purpose and a description of the medical surveillance program required by paragraph (h) of this section.

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- (j) Recordkeeping (29 CFR 1910.1020)
Exposure Testing – 30 years
 - (A) The date of measurement for each sample taken;
 - (B) The task monitored;
 - (C) Sampling and analytical methods used;
 - (D) Number, duration, and results of samples taken;
 - (E) Identity of the laboratory that performed the analysis;
 - (F) Type of personal protective equipment, such as respirators, worn by the employees monitored; and
 - (G) Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

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- (j) Recordkeeping
Medical Records – Employment + 30 years
 - (A) Name and social security number;
 - (B) A copy of the PLHCPs' and specialists' written medical opinions; and
 - (C) A copy of the information provided to the PLHCPs and specialists.

OSHA Standard

(k) Effective Dates

- June 23, 2016 – Standard issued
- June 23, 2017 – Standard becomes effective
- June 23, 2018 – Paragraph (d)(2)(v) becomes effective
