

Everything You wanted to Know about the new MSHA Silica Standard

AIR MONITORING FOR COMPLIANCE WITH THE NEW MSHA SILICA STANDARD

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Agenda

- Who is affected
- Timeline for Compliance
- Major Components of the MSHA Silica Standard
- Exposure Sampling
- How to Comply





Speaker and Presentation Credit

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- Mr. Lawrence has been in the laboratory industry for over 15 years. Starting in customer service, then moving into the lab and then into the role of business development. He has many years of assisting clients with technical questions, assisting with data interpretation and understanding the needs of many different clients.
- He has worked with many clients in North America to assist with their needs regarding Industrial Hygiene, and regulatory needs for environmental testing. He is also a key contact within SGS for the mining cycle testing needs of clients, from the grassroots of the mine process to the closure monitoring.







MSHA Silica Standard Jast updated 1985

OSHA Silica Standard Jast updated 2016



The purpose of this proposed rule is simple – to better protect the miners from exposure to silica so they do not have to suffer form entirely preventable debilitating and deadly occupational illnesses. Silica overexposures have a real-life impact on a miner's health.

Chris Williamson

Assistant Secretary of Labor for MSHA





Who Is Impacted

All Mines

- Metal
- Non-Metal
 - Quarries
 - Gravel
 - Sand
 - Aggregate
- Coal







SIMILAR EXPOSURE GROUPS (SEG)



- Good news do not have to sample worker at the site.
- Breakdown the workers who ae performing the same tasks, same shifts, and same work areas
- The selected workers should be the ones that are expected to have the highest exposure risk to RCS
 - Drillers
 - Stone Cutting Operators
 - Kiln, Mill, and Concentrator Workers
 - Crushing Equipment Operators and Plant Operators
 - Packing Equipment Operators
 - Conveyor Operators
 - Truck Loading Station Tenders
 - Operators of Large Powered Haulage
 - Equipment Operators of Small Powered Haulage
 - Equipment Mobile Workers
 - Miners in Other Occupations
- No certifications needed for the person doing the sampling







Mine Safety and Health Administration

MSHA Silica Standard

https://www.msha.gov/sites/default/files/Regulations/Silica-Stakeholder-Meeting-Slides-2024-09-06.pdf

268 pages as a PDF





50 µg/m3 as 8-hour TWA

25 µg/m3 action level as TWA



New Rule Timeline



Major Components of the New Rule



•	Allowed to continue to operate if exposure is > action level and < TWA.	 Increased rigor of enforcement protocols and inspections with penalties for non-compliance. 		Report any PEL exceedance to MSHA.	Qualified labs can be found on the AIHA LAP website or A2LA.
	Labs must ISO 17025 certified and use NIOSH or OSHA approved methods.	 Establishes uniform standard among all mines. 		Uniform requirements for medical surveillance across all mines.	Periodic inspections conducted every 6 months whenever there is a change in the process - resample.
-	If over exposure occurs, MSHA is notified, and employees wear approved respirator until exposure is PEL.	 Mine operators can conduct the surveys. 		Allows for alternative collection devices – must meet ISO 7708:1995E standard.	Full shift sampling must be done and includes extended work shifts.
	Environmental cabs can be considered engineering controls.	 Uniform requirements for controlling and monitoring exposures across all mines. 	-	NO need to sample all miners; use a representative fraction (>2) at the highest expected exposure.	Updates reflect the latest advances in respiratory technologies and practices.



I&E

Exposure Assessment





Exposure Assessment Initial Compliance

- Initial exposure monitoring of employees who are, or may reasonably be expected to be, exposed to crystalline silica
- Determine employee exposure levels
 - >50 µg/m3 (PEL)
 - mine operator must make approved respirators available to the affected miners before the start of the next work shift and ensure that the affected miners wear the respirators for the full shift or during the period of overexposure until miner exposures are at or below the PEL. Corrective actions must be taken immediately to lower the concentration of respirable crystalline silica to at or below the PEL.
 - <50 µg/m3 and >25 µg/m3 (between PEL and Action Level)
 - mine operator must continue to sample within 3 months of the previous sampling.
 - <25 µg/m3 (Below Action Level)
 - Periodic inspections every 6 months





In advance of sampling, communicate with the lab

- Communicate with the lab as early as possible
- Obtain sampling media and appropriate forms Chain of Custody (COC)
- Let the lab know how many samples will be arriving
- Inform the lab as to when you will need the results

Determine your Similar Exposure Groups (SEGs)

• This will assist you in determining how many samples you need to collect

Preparation at the work site

- Communicate with mine personnel in advance about schedule and expectations
- Allocate extra time before and after the shift for set up and calibration, and for providing proper instruction to those wearing the samplers
- A good rule of thumb is allowing an hour before and after the sampling event is schedule

Calibration

• Always perform a pre- and post-calibration, and record results





Inspect equipment

- Inspect media and sampling equipment prior to collection
- Check O-rings and accessories
- Verify everything is intact
- Clean out cyclones and cyclone grit pots prior to use

Sample volumes

- Make sure you use the correct air flow rate for the size selective sampling device you are using such as cyclones or parallel particle impactors(PPIs)
- Verify with the lab the air volume needed to meet the limit of detection(DL) required

Representative sampling

- Make sure sampling is representative of equipment use and engineering controls
- Sample during normal working conditions neither worst case or least possible exposure



During sampling

- Spot check your sample and record relevant activities
- Keep an activity log with relevant information such as location and work activities
- Do not simply turn on the pumps and leave then come back at the end of the shift; but instead schedule times to make spot checks and take notes
- Sample for the entire shift and not just during potential exposure activities

Field blanks

- Field blanks are ALWAYS needed with each batch for quality assurance purposes
- Field blanks are sampling media that accompany and are handled in a similar manner as air samples, but no air is pulled through them.
- At a minimum, there should be at least one blank submitted for each day of sampling

Sample submission

- Provide sampling times and flow rates required for determining or verifying air volumes
- Identify clearly responsible person and contact information for whom will be receiving the lab report and invoice
- Identify everyone that needs a copy of the report
- Provide contact information for the lab if there are any questions regarding samples
- Sign and date COC form prior to shipment to the laboratory.



Sample labeling and paperwork

- Use unique identification IDs on all media (do not label samples with the same ID)
- Make paperwork and media labels legible
- Use pre-labelled media when possible
- Keep IDs confidential and consider not using names
- Do not use Social Security Numbers (keep cross reference field notes)

Specify analysis type (gravimetric and silica)

- Indicate if lab should analyze for all three forms of silica or just quartz
- Although respirable dust concentrations are not required MSHA RCS compliance, please indicate if you need it and order pre-weighed filters

Chain—of-custody

- A signed chain-of-custody is required
- Fill out all spaces on COC and use online and or prefilled COC where possible





Shipping

- Do not ship bulk samples with air samples (Bulk samples can be archived by operator or sent to the lab if necessary)
- Use lab provided shipping containers if possible
- Give special care to packing

Results

- Be sure to inform management and affected employees of results
- Post the results for employees as required
- Be sure to inform MSHA if the PEL is exceeded for valid samples
- Maintain results and sample collection information for record keeping
- Area sampling
 - Consider area sampling to evaluate specific areas or processes prior to or in conjunction with personal sampling
 - Area samples can provide useful information on air quality but are not valid samples for MSHA compliance purposes.



How to Comply



Read the RULE

Federal Register :: Lowering Miners' Exposure to Respirable Crystalline Silica and Improving Respiratory Protection; Correction



Don't Wait

- April 14, 2025, for coal mines
- April 8, 2026, for all others



Develop a Sampling Plan

- Internally
- Outside Consultant
- Laboratory support



Choose a Qualified Lab

• your best friend







Thank you!

Do you have any questions? <u>www.sgsgalson.com</u>

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