



FACT SHEET

Proposed Rule - *Lowering Miners' Exposure to Respirable Crystalline Silica and Improving Respiratory Protection*



Background

- Inhalation of respirable crystalline silica (also known as silica dust) is a common occupational hazard faced by miners. Silica dust is generated in most mining activities, including cutting; sanding; drilling; crushing; grinding; sawing; scraping; jackhammering; excavating; and hauling rock, gravel, and sand. In nearly all mining operations at metal and nonmetal (MNM) and coal mines, crystalline silica is present in the form of quartz.
- The adverse health effects of occupational exposure to respirable crystalline silica have been extensively researched and documented in the health literature.
 - Respirable crystalline silica is an occupational carcinogen that puts workers at risk for developing preventable, severe diseases including:
 - Silicosis (acute silicosis, accelerated silicosis, simple chronic silicosis, and progressive massive fibrosis);
 - Non-malignant respiratory diseases (e.g., emphysema and chronic bronchitis);
 - Lung cancer; and
 - Kidney disease.
 - Exposure to mixed coal mine dust containing respirable crystalline silica can lead to the development of coal workers' pneumoconiosis, progressive massive fibrosis, and multi-dust pneumoconiosis.
 - Each of these illnesses is chronic, irreversible, and potentially disabling or fatal.
- In 2016, the Occupational Safety and Health Administration (OSHA) established a permissible exposure limit (PEL) of 50 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) and an action level of 25 $\mu\text{g}/\text{m}^3$, calculated as an 8-hour time weighted average (TWA) for construction and for general industry and maritime.

Existing Standards

- For MNM mines, the existing exposure limit for quartz is 100 $\mu\text{g}/\text{m}^3$ for a full-shift exposure, calculated as an 8-hour TWA.
- For coal mines, there is no separate standard for respirable crystalline silica. Coal miners' exposures to respirable quartz are regulated through reductions in the overall respirable coal mine dust standard.
- MSHA's existing standards limit miners' exposures to respirable crystalline silica by requiring mine operators to monitor occupational exposure to respirable crystalline silica and to use engineering controls as the primary means of suppressing, diluting, or diverting dust generated by mining activities. Mine operators are also required to provide respiratory protection on a temporary basis in limited situations such as when overexposures occur and are being corrected.

Proposed Rule

- **Lowering respirable crystalline silica exposures – PEL:** MSHA is proposing to lower its existing exposure limits for respirable crystalline silica in MNM and coal mines to a PEL of 50 $\mu\text{g}/\text{m}^3$ for a full-shift exposure, calculated as an 8-hour TWA.
 - This would be consistent with the National Institute for Occupational Safety and Health (NIOSH) recommendation that no worker be exposed to a TWA of respirable crystalline silica greater than 50 $\mu\text{g}/\text{m}^3$ as determined by a full-shift sample for up to a 10-hour workday over a 40-hour workweek and consistent with OSHA’s 2016 final rule that applies to workers in construction, maritime, and general industry.
 - If miner exposures are above the proposed PEL, the mine operator would be required to take corrective actions immediately and perform sampling.
- **Lowering respirable crystalline silica exposures – Action Level:** MSHA also proposes to establish an action level for respirable crystalline silica of 25 $\mu\text{g}/\text{m}^3$ for a full-shift exposure, calculated as an 8-hour TWA, to reduce health risks. When miners’ exposures are at or above the proposed action level and at or below the proposed PEL, the proposed rule would require mine operators to conduct periodic sampling until miners’ exposures are below the action level.
- **Improving early detection of disease:** The proposed rule also includes medical surveillance requirements for MNM miners, modeled on existing medical surveillance requirements for coal miners. This provision is consistent with Section 101(a)(7) of the Federal Mine Safety and Health Act of 1977 (Pub. L. 91-173). Medical surveillance would provide maximum health protection for miners and provide MNM miners with information needed for early detection of respirable crystalline silica-related disease, reducing risk of substantial disability.
- **Updating the respiratory protection standard:** MSHA proposes to incorporate by reference the American Society for Testing and Materials (ASTM) International 2019 standard entitled “*Standard Practice for Respiratory Protection*,” for respirable crystalline silica and all other regulated airborne contaminants. The Agency intends to assist mine operators in developing effective respiratory protection practices and programs that meet recent voluntary consensus standards. This proposal would better protect miners who wear respiratory protection.