

Silica and Respirators

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Materials Likely to Contain Silica

- Sand
- Dirt
- Soil
- Concrete
- Portland Cement
- Bricks
- Pavement
- Slag
- Coal dust
- Soapstone
- Graphite, natural
- Mica
- Mineral products
- Abrasives
- Paints (filler material)
- Polishing compounds
- Plastic fillers
- Filter aids
- Perlite
- Silicates (SiO_4)

Work With Likely Silica Exposure

- Abrasive blasting
- Asphalt pavement mfg.
- Blast furnaces
- Cement mfg.
- Ceramic, clay and pottery
- Concrete mixing
- Concrete tunneling
- Construction
- Demolition
- Electronics Industry
- Foundry tasks* including molding, shakeout, core room, grinding
- Hand molding, casting and forming
- Jack hammer operation
- Mfg. of abrasives, paints, soaps and glass
- Mining
- Repair or replacement of linings in rotary kilns and cupola furnaces
- Rolling and finishing mills
- Sandblasting *
- Setting, laying and repairing railroad tracks
- Stone, brick and concrete block cutting, blasting, chipping, grinding and sawing
- Tuck pointing *
- Tunneling operations

* High risk

Silicosis

- Pulmonary fibrosis of the lungs caused by the inhalation of dust containing free silica
- Nodules form in the lung, which coalesce in large fibrous masses
- Quartz heated to temperatures in excess of $1,000^{\circ}\text{C}$ is converted to tridymite and cristobalite
- Heating of amorphous forms of free silica can also create crystalline forms of free silica

Exposure Limit

- PEL in mppcf = $250 / (\%SiO_2 + 5)$
- Respirable dust limit



Engineering Controls

- Wet methods
- Ventilation
- Enclosures



- Elimination
- Substitution

Administrative Controls



- Limit access to dusty areas
- Employee rotation

Respirators

- Used when engineering and administrative controls are not sufficient to reduce exposures below the PEL
- Requires
 - written respiratory protection program
 - medical evaluation
 - employee Training
 - fit testing



Employee Training

- Employee right to know
- Health hazards
- Ways to limit exposure
- Appropriate PPE



Recordkeeping

- Exposure assessment records
- Respirator medical evaluation and fit testing
- Training records
- Injury and Illness records



MNOSHA's Newsletter

- *Safety Lines* is an online, quarterly publication of the Minnesota Department of Labor and Industry
- Its purpose is to promote occupational safety and health and to inform readers of the purpose, plans and progress of Minnesota OSHA
- Sign up to receive notification via email, online at www.dli.mn.gov/OSHA/SafetyLines.asp


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Safety Lines

2008: Minnesota OSHA's year in review

Compiled by Shelly Techor, MNOSHA Management Analyst, and Kelly Taylor, MNOSHA Program Analyst

Performance review highlights
Each year, Minnesota OSHA (MNOSHA) conducts a review of its projected performance as defined in its performance plan, which is generated prior to the start of the federal fiscal-year (FFY), Oct. 1.




In FFY 2008, Minnesota OSHA:

- visited 2,591 establishments and identified 4,884 hazards;
- generated safety inspection results within 19 days on average, while the national average is 46 days;
- generated health inspection results within 33 days on average, while the national average is 59 days;
- resolved contested cases within 148 days on average, while the national average is 258 days;
- conducted 81 outreach presentations with an average participation level of 53 people; and
- signed a new partnership with the Minnesota Department of Transportation and Flatiron-Manson Joint Venture. (See *Safety Lines*, January 2008, *I-35W bridge rebuild partnership*).

For more information about MNOSHA's performance, the MNOSHA annual report is posted online during the first quarter of each calendar year at www.doli.state.mn.us/mnosha.html.

ATTENTION TO SAFETY AND HEALTH SPANS LENGTH OF I-35W PROJECT



Minnesota OSHA (MNOSHA) completed its last audit at the I-35W bridge reconstruction project, Oct. 16. During the project, Kevin Gilbert and Mike Wollan, MNOSHA compliance assistance principals, conducted more than 120 random audits, which identified and corrected more than 500 hazards. The new bridge opened to the public Sept. 18.

During the project there were:

- **716,440** hours worked • **zero** fatalities • **one** lost-time (back) injury
- **37** recordable cases • **106** first aid cases

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