Q & A

Silica - the Problem that Won't Go Away!
Is Silicosis Serious?
Is Silicosis Still a Problem in the 2000's?
How Can Silicosis Be Prevented?
Why Should Your Company Worry About Silicosis?
What is Air Sampling?
What Does Medical Monitoring Include?

➔ ➔ ➔ SILICA - THE PROBLEM THAT WON'T GO AWAY.

What is silica? It's the second most common mineral in the earth's crust and is a major component of sand, rock and mineral ore. It's a cheap abrasive blasting material and provides good blasting results.

How tragic that a substance that is so non-toxic in its whole form is so toxic when used as an abrasive blasting agent. As a result, silicosis has also existed for as many years as abrasive blasting has been an industry. At least since the 1930's, silica has been known to cause illness among abrasive blasting workers. It is also a health hazard for miners, foundry workers, stone cutters, masons and glass manufacturers

➔ ➔ ➔ IS SILICOSIS SERIOUS?

Yes. Silicosis occurs in many stages of development. There are several types of silicosis. Refer to Chapter 2.

In the worst cases, silicosis can cause serious disability, secondary disease or death. Cases like these are not uncommon. Less serious cases can also have a heavy impact on those who are affected.

The family and children of abrasive blasters are also at risk of being exposed to silica dusts carried home on their parents' work clothes or shoes. Lasting health effects can result from these exposures.

For cases of silicosis there is no treatment. Secondary infections such as tuberculosis or bronchitis can be treated but silicosis cannot. For that reason, protection and prevention are absolutely essential.

Q & A

➔ ➔ ➔ IS SILICOSIS STILL A PROBLEM IN THE 2000's?

Yes. Michigan's surveillance efforts have confirmed 986 cases of silicosis from 1985-2005. Each year approximately 20-40 new cases are confirmed. Using data from the Michigan silicosis surveillance system and the number of deaths that occur nationally from silicosis collected by the National Center for Health Statistics, we estimate that there are approximately 3,600 to 7,300 newly diagnosed cases of silicosis occurring each year in the United States.

The individuals identified with silicosis generally have severe disease. Twenty-five percent have progressive massive fibrosis (PMF) and another 34% have advanced simple silicosis. Only about a third of all patients have normal breathing tests. Nineteen percent had been told they had tuberculosis (includes either clinical disease or a positive skin test). Individuals with silicosis in Michigan have an increase of over 300% in the likelihood of dying from non-malignant respiratory disease, both restrictive and obstructive, and an 80% increase in the likelihood of dying from lung cancer

Ninety-eight percent of the cases are men. Many people who are exposed to respirable silica dust at work never get medical monitoring, so the official count is just a fraction of the true number of those with silicosis.

Not surprisingly, this typical high silica dust-exposed, worker has not received adequate safety training. Neither have any of his coworkers. His workplace lacks the engineering controls like dust collection systems, ventilation and the respiratory protection that are needed to handle silica dust safely. Most times small shops don't have showers where workers can clean up before going home.

➔ ➔ ➔ HOW CAN SILICOSIS BE PREVENTED?

Every single case of silicosis can be prevented. This is the general idea: silica has no useful role in the human body, so protect yourself from exposures and keep it out.

- ➔ Non-silica abrasive blasting medias should be used.
- ➔ Eliminate or cut down on the amount of silica dusts in your shop.
- ➔ Give workers the knowledge, tools, and training to protect themselves.

Q & A

Companies should eliminate the risk by substituting abrasive medias. For those that can't, you should rely on protective measures. Use special equipment for dust collection, ventilation and respiratory protection. Provide frequent safety training sessions for your workers. As long as silica sand is used to blast, progress must be achieved by changes made in individual companies like yours. Your shop and your coworkers will be required to make a commitment to the prevention of silicosis.

➔ ➔ ➔ WHY SHOULD YOUR COMPANY WORRY ABOUT SILICOSIS?

Silicosis statistics leave no doubt that there is a danger to the health of abrasive blasting workers if the worker blasts with sand, without using appropriate engineering controls, respiratory protection and other personal protective equipment. What will happen if any employee develops silicosis?

What will happen when a MIOSHA inspector shows up on your doorstep? Upon arriving, unannounced, the MIOSHA safety or health officer will seek out the chief executive of the workplace. If employees have a designated representative, that representative also will be asked to join in the inspection. Where there is no designated employee representative, interviews will be conducted with a number of employees based on the total in the workplace. The officer may at this time review all required MIOSHA record keeping documents such as the injury/illness log (Form 300), and required written programs or procedures that apply such as Hazard Communication/Right to Know and Lockout/Tagout. Upon completion of the safety or health officer's explanation and review of records, an actual walk-through of the facilities or worksite will take place. Conditions that could endanger the health or safety of employees will be pointed out, exposure measurements will be taken if necessary, and described as they relate to violations of Occupational Safety or Health Standards.

At the completion of the inspection, a closing conference is held to discuss any findings, determine the amount of time necessary to correct any hazards found and review your rights to appeal the department's decision. During the closing conference, the MIOSHA safety or health officer will review penalty adjustment factors. *An employer may be eligible for Good Faith credit by having an effective Safety and Health Program in place*. MIOSHA provisions also provide for penalty adjustment based on the seriousness of the violation, size of business, and past MIOSHA history. MIOSHA citations can carry monetary penalties and will contain time requirements for correcting the violations(s).

Q & A

MIOSHA has published a brochure "MIOSHA Enforcement: An Overview for the Employer" – the information above is excerpted from this brochure. The brochure is available on the MIOSHA website at:
http://www.michigan.gov/documents/cis_wsh_cet0102_126927_7.htm

Your shop should consider this: If a MIOSHA inspector finds serious silica dust problems in your shop, you could be made to pay substantial fines. If silica dusts from your company make anyone sick, you could face increased workers' compensation costs. If anyone in your community gets sick, you could face enormous lawsuits. You should also think about yourself and your family. All of these problems will be far worse if you wait for them to happen, rather than taking action to correct them now.

As your company plans for the future, consider all the benefits and the risks of blasting with silica. Fixing potential silica dust problems now could make the difference between the companies success and failure.

➔ ➔ ➔ WHAT IS AIR SAMPLING?

Air sampling is a way of measuring how much silica dust is in the air that workers breathe. This is important because breathing is how silica gets into the lungs. When air sampling is performed, samples of workplace air from your breathing zone are collected by special personal air sampling pumps. Silica dusts are trapped on small, ultra-efficient filters and the filters are sent to a lab to be analyzed for your exposure. The sample collection equipment is light and portable. Several workers will wear sampling pumps throughout the sampling session. Air sampling should be performed on days when production is at 100%.

Air sampling should be done under the supervision of a professional - an industrial hygienist is qualified and trained in workplace air sampling. A plan should be developed with the industrial hygienist's assistance to outline the number of air samples needed, selected workers and areas to sample, who will wear the sampling equipment and the days on which the sampling will be performed. The industrial hygienist will be responsible for assuring that high-quality, reliable, analytical results are obtained and that proper equipment and methods are used.

MIOSHA CET personnel can also assist companies in performing air monitoring. Please contact MIOSHA CET for advice, equipment and analytical support if you choose to do the air monitoring yourself.

Q & A

➔ ➔ ➔ WHAT DOES MEDICAL MONITORING INCLUDE?

MSU recommends employers have a medical monitoring program. The program should be set up and run by a medical doctor, preferably an occupational medical expert, or occupational clinic. The services provided would include a medical and occupational history, medical evaluation, pulmonary function test, chest X-ray and communication with the company and the employee.