pennsylvania
DEPARTMENT OF HEALTH

CRYSTALLINE SILICA / SILICA DUST

Crystalline silica is a mineral found in the Earth's crust. It is commonly found in nature as quartz and is also a major component of sand and soil. It is colorless, odorless, and non-flammable. Crystalline silica is used in manufacturing, household abrasives, engineered stone countertops, adhesives, paints, soaps, and glass. Materials that contain crystalline silica are not hazardous unless they are disturbed, generating small particles known as silica dust or respirable crystalline silica that can get into the lungs. Workers in occupations such as mining, oil and gas extraction, glass manufacturing, and construction are likely to be exposed to silica dust. Occupational exposure to crystalline silica in the air is the main cause of silicosis and other related lung problems, including lung cancer.

HOW DOES SILICA DUST GET INTO MY BODY?

Crystalline silica enters the body through inhaling tiny silica particles in the air. These particles become lodged in the lungs. Crystalline silica may also come in contact with the eyes. Exposure is most common when workers chip, cut, drill, polish, or grind objects that contain crystalline silica.

WHAT CAN SILICA DUST DO TO ME?

Crystalline silica is a serious threat to U.S. workers. Exposure to silica dust may cause lung cancer, silicosis (a lung disease characterized by lung tissue scarring and difficulty breathing), and other lung, autoimmune, and kidney diseases. It may also be irritating to the eyes. Silicosis is a progressive, disabling lung disease that can be fatal. Typical symptoms of silicosis include chronic cough, shortness of breath, wheezing, chest pain, weakness, fatigue, and weight loss. There are three types of silicosis: 1) chronic silicosis, the most common type, appears after 10 or more years of exposure; 2) accelerated silicosis is associated with higher levels of exposure to silica dust and appears within 10 years; and 3) acute silicosis appears within weeks or months of very high silica dust exposure.

WHAT AMOUNT OF SILICA DUST IS UNSAFE?

The Occupational Safety and Health Agency (OSHA) limits crystalline silica in workplace air to 50 micrograms per cubic meter of air during an 8-hour day. OSHA has also set a silica action level of 25 micrograms per cubic meter of air during an 8-hour day. Above this level, new OSHA standards adopted in 2016 for both construction and general industry and maritime require employers to take steps to protect workers and limit their exposures.

WHAT CAN I DO IF I MAY BE EXPOSED TO SILICA DUST AT WORK?

- Do not smoke or work to quit smoking.
- Always wear provided personal protective equipment such as respirators and goggles when working with silica or silica-containing products.
- Be aware that you may carry silica home. Shower and change clothes before going home.
- Visit a health care provider regularly for lung disease monitoring. The National Institute for Occupational Safety and Health (NIOSH) recommends a medical examination every three years.

If you have questions or concerns about silica, please contact the
Division of Environmental Health Epidemiology at dehe@pa.gov or 717-787-3350.

August 2023

1. https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=1483&tid=290
2. https://www.atsdr.cdc.gov/ToxProfiles/tp211.pdf