



## SILICA DUST EXPOSURE CONTROL

**Introduction:** Silica dust is a hazardous byproduct of many common construction activities such as cutting, grinding, drilling, or demolishing materials like concrete, stone, and brick. When disturbed, silica becomes airborne and can pose severe health risks. Inhalation of silica dust may lead to serious respiratory conditions, including silicosis (an incurable and progressive lung disease), lung cancer, and chronic obstructive pulmonary disease (COPD). Effective control of silica dust is essential to protect workers from these life-threatening illnesses.

**Sources of Silica Exposure: Silica dust is commonly generated from activities including:**

- Cutting, grinding, drilling, or chipping materials like concrete, brick, masonry, or stone
- Power cutting, abrasive blasting, or hydro blasting concrete or masonry
- Crushing, loading, hauling, or dumping of rock or dirt
- Dry sweeping or using compressed air to clean work areas
- Demolition of buildings containing concrete and masonry materials
- Excavating, tunneling, or earthmoving

**Control Measures:**

To mitigate the risks of silica dust, a combination of engineering controls, work practices, and personal protective equipment (PPE) should be implemented.

- **Water Suppression:** Use water spray systems or wet methods to suppress dust at the source during cutting, grinding, or drilling operations. This prevents silica particles from becoming airborne.
- **Local Exhaust Ventilation (LEV) :** Install LEV systems at the point of dust generation to capture and remove dust particles before they enter the breathing zone of workers.
- **Enclosures or Barriers:** Use physical barriers or enclosures around high-dust areas to contain dust and prevent it from spreading to other parts of the worksite.
- **Respiratory Protection:** When engineering controls are not enough, workers must use NIOSH-approved respirators (such as N95 or P100 masks) to avoid inhaling silica dust. Proper fit and regular maintenance of respirators are essential to ensure their effectiveness.
- **Housekeeping Practices:** Minimize dust accumulation on surfaces. Instead of dry sweeping, use wet cleaning methods or HEPA-filtered vacuums to prevent re-suspending dust into the air. Avoid using compressed air to blow away dust as it increases exposure risk.
- **Ventilation:** Ensure the worksite is well-ventilated to help disperse any dust generated during activities. Proper airflow can reduce the concentration of silica dust in the air.
- **Medical Surveillance:** Workers regularly exposed to silica dust should participate in a medical surveillance program, which includes periodic chest X-rays and lung function tests. Early detection of diseases like silicosis is critical to managing health risks.
- **Good Hygiene Practices:** Wash hands and face before eating, drinking, or smoking, especially outside of dusty areas. Avoid consuming food, drinks, or using tobacco in areas where silica dust is present.

**Discussion Topics:**

1. What are the potential sources of silica dust at our worksite?
2. Have you been exposed to silica dust from your work or nearby activities? What control measures were in place?
3. What steps can you take today to reduce or eliminate your exposure to silica dust?
4. Do you have access to the necessary PPE and understand how to use it properly?

**Takeaway:** By combining engineering controls, good work practices, proper housekeeping, and the correct use of PPE, we can significantly reduce the risks of silica dust exposure. Protecting workers from silica-related illnesses is an ongoing effort that requires diligence in maintaining a safe and compliant work environment.

