

# REDUCE SILICA EXPOSURE DURING JACKHAMMER WORK

## USE A SIMPLE WATER-SPRAY DUST CONTROL

### Problem

Concrete, masonry, and many stone products contain crystalline silica. Tasks such as jackhammering, sawing, grinding, and drilling on these materials pose a risk to workers by generating airborne silica dust. Exposure to silica dust can cause a disabling, often fatal, lung disease called silicosis. Although silicosis is incurable and irreversible, it is 100% preventable. The key is to prevent worker exposure to dust.

### Jackhammer Exposure Measurements

The New Jersey Silica Outreach and Research (SOAR) Alliance was formed among NJ state agencies, federal agencies, laborer's unions, and contractors to address issues associated with silica exposure among NJ highway construction/ repair workers. NJ SOAR Alliance industrial hygienists collected 25 measurements of silica exposure on jackhammer operators. All 25 of the exposures exceeded the ACGIH threshold limit value (TLV) of  $0.025 \text{ mg/m}^3$  and 23 exceeded the less protective OSHA permissible exposure limit (PEL) which is essentially  $0.1 \text{ mg/m}^3$ . The average exposure was more than 53 times the ACGIH TLV, and ranged as high as 124 times the TLV.



### Solution

NJ SOAR Alliance partners conducted a study of three engineering control methods for effectiveness, as well as acceptability by jackhammer operators. A water-spray dust control, designed and developed by NJ SOAR Alliance partners, was identified as the most effective and acceptable method. The water-spray control works on any jackhammer and can be assembled from readily available parts and materials at a cost of less than \$300. The how-to manual, produced by the NJ Laborers Health and Safety Fund, describes the steps in assembling and attaching the water-spray control, and includes a list of parts and materials, their sources, and their costs.



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