



Measuring Silica Exposure from Concrete Cutting – Wet vs. Dry Methods

Controlling Dust from Concrete Saw Cutting

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Overview

Cutting concrete with gas-powered portable saws is ubiquitous in the construction industry and a source of exposure to hazardous airborne, respirable crystalline silica. Silica damages lungs and causes lung cancer, increases risk for tuberculosis, and has been linked to chronic obstructive pulmonary disease (COPD) and other illnesses. In head-to-head tests cutting reinforced concrete pipe, researchers found that wet cutting reduced the respirable silica dust concentration by 85%.

Key Findings

- In a series of controlled tests, wet cutting reduced the respirable dust concentration by 85% compared with dry cutting.
- The study found a high variability in dust exposure levels between workers where more experienced operators as a group had higher measured exposures than the apprentices, possibly due to their ability to cut with greater force. Therefore work practices can contribute to dust exposures.
- Concrete cutting is often a short-period task and is thus typically assumed to remain below the OSHA permissible exposure limit (PEL). However, even in the short three-to-five-minute sampling time, 10 of the 79 dry cutting trials generated silica exposures exceeding the OSHA PEL; only one of the 89 wet cutting trials did so.

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See abstract:

<http://www.ncbi.nlm.nih.gov/pubmed/23252479>

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