

SNAPSHOT OF ABRASIVE BLASTING IN MICHIGAN: 1995 - 2024

SUMMARY: In 1995, the Michigan State University Occupational and Environmental Medicine (MSU OEM) research team conducted the first survey of companies in the state that performed abrasive blasting. The program documented the extent of silica sand use in abrasive blasting activities and offered resources including a training manual on identifying alternative media, safe work procedures, and information on the health effects of exposure to crystalline silica. The survey was updated in 1999, 2005, 2011, 2016 and most recently, in 2024. The training manual was updated in 2018 when the new Federal silica standard was adopted in Michigan by the Michigan Occupational Safety and Health Administration (MIOSHA).

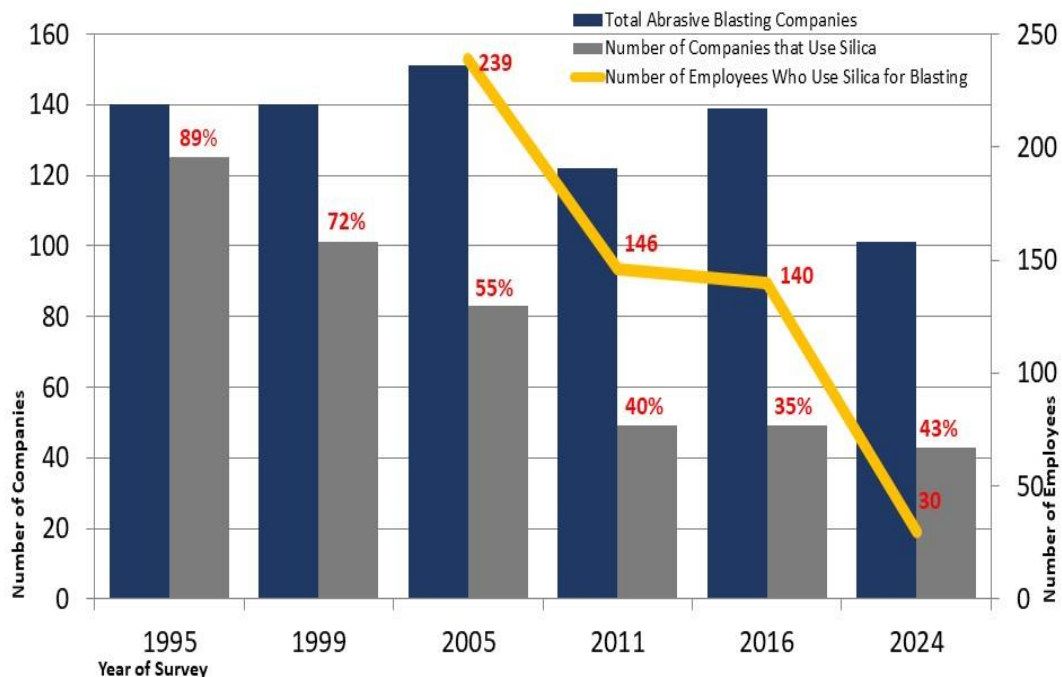
2024 Survey Results: Of the 220 companies in Michigan that responded to the 2024 survey, 101 indicated that they performed abrasive blasting. Of the 101 that did abrasive blasting, 43 (43%) used silica as an abrasive. Other abrasive media reported included: steel shot (17%), aluminum oxide (12%), glass beads (10%), coal slag (8%), walnut shells (8%), baking soda (6%), crushed glass (6%), garnet (5%), corn cobs (4%) plastic (2%) and iron oxide (1%). Other less frequently reported media included sponge, vapor, water, Starblast and Stauroelite.

Among the 101 companies that do abrasive blasting: Information on the number of employees performing abrasive blasting was available for 55 of the 101 companies. A total of 227 employees performed any type of abrasive blasting at the 55 companies, with an average of 4 employees per company (range 1 to 40). Seventeen of the 43 companies that used silica had a known number of employees; a total of 30 employees used silica sand for abrasive blasting, with an average of 1.8 employees per company (range 1-4).

Prior Survey Results: In 2016, our survey of the 139 abrasive blasting companies in the state found that 35% used silica as an abrasive. Results from abrasive blasting surveys prior to 2016 found the percentages of companies using silica was: 89% in 1995; 72% in 1999, 55% in 2005 and 40% in 2011. At the completion of each survey, literature was distributed to the facilities that performed abrasive blasting using silica, with information on the hazards associated with the use of silica as well as information on alternative media.

SILICA SUBSTITUTES: Abrasive blasting with silica sand places workers at risk of developing chronic, irreversible lung diseases-- silicosis and chronic obstructive lung disease (COPD). Silica has also been linked to the development of lung cancer, connective tissue disease such as rheumatoid arthritis, chronic renal failure and can put workers at increased risk of developing active tuberculosis if there was a past or there is a future exposure to the tuberculosis mycobacteria. When possible, alternative abrasive blasting media should be considered: dry ice, plastic bead, sponge, baking soda, ground walnut shells, ground corn cob and high pressure water offer less toxic alternatives.

Use of Silica as an Abrasive for Blasting, Michigan, 1995-2024



DID YOU KNOW

- **The National Toxicology Program of the U.S. Department of Health and Human Services has included silica on the list of “Substances Known to be Human Carcinogens.”**
- **Quartz sand, granite, beach sand, and baby sand all contain crystalline silica and are harmful when used as an abrasive.**
- **There is a new OSHA silica standard.** The new standard has a number of new provisions that require employers to perform air monitoring for silica, train employees, institute workplace controls and provide medical monitoring for employees.

RESOURCES

- ✓ **OSHA Fact Sheet: Protecting Workers from the Hazards of Abrasive Blasting Materials:** <https://www.osha.gov/Publications/OSHA3697.pdf>
- ✓ **Federal OSHA's new silica standard:** <https://www.osha.gov/silica/index.html>
- ✓ **Michigan OSHA resources:** www.michigan.gov/miosha
- ✓ **MSU OEM resources:** oem.msu.edu/index.php/resources#Abrasive_Blasting

Date last revised: 7-8-2024