

The U.S. National Institute for Occupational Safety and Health (NIOSH) field studies have identified overexposure to airborne silica as a health hazard to workers. [1] In 2016, the U.S. Occupational Safety and Health Administration (OSHA) released its final rule, “Occupational Exposure to Respirable Crystalline Silica”, to limit worker exposure to respirable crystalline silica. The requirements become effective on 23 June 2018, and the rule contains 2 standards, one for general industry and maritime (which applies to oil and gas workers) and one for construction. The rule limits exposure to an 8-hour-time-weighted average of 50 micrograms of respirable crystalline silica per cubic meter of air. [2] Silica sand is used in larger quantities during hydraulic fracturing activities, where it is blended with other fluids prior to high-pressure injection into the drilling hole.

Key Messages

- Personal protective equipment is an effective tool in limiting the exposure of workers to respirable crystalline silica, and the use of respirators is consistent and widespread throughout the oil and gas industry. OSHA contractor ERG concluded that the oil and gas industry has a high level of safety awareness among the workforce with widespread and appropriate use of respirators and that many companies contractually enforce worker safety and health provisions at the well site. [3]
- Worker safety is the highest priority for IADC members. In many instances, production companies are contractually obligated to enforce safety requirements for their service providers. Workers are continuously trained on proper use of respirators, and health and safety personnel work hard to enforce a safety culture that puts employee health and safety above everything else.
- Industry continues to work together to develop and implement strategies and technologies that reduce dust emissions at hydraulic fracturing sites to protect employees. New technologies and equipment to further reduce dust emissions are done carefully and analyzed closely to ensure that the implementation does not unknowingly cause other safety or environmental concerns.
- Since 1968, silicosis mortality has decreased by approximately 90%, indicating a clear trend toward the goal of eliminating silica-related mortality in the U.S. [4,5]. This decline proves that current federal regulations have been effective.
- Industry maintains that the NIOSH oil and gas chemical exposure risk study, on which OSHA’s final silica rule is based, is flawed. The report is based on exposure data from 11 sites, 70% of which were in the same basin. [6] Industry has argued that the data is insufficient and not representative of the industry as a whole, and likely leaves out data points that could more accurately pinpoint exposure limits. There is a wide variability between basins and job sites where geography and wind conditions can significantly impact exposure levels. These should be considered in order put together a more accurate exposure profile.

Resources

1. https://www.osha.gov/dts/hazardalerts/hydraulic_frac_hazard_alert.html

2. <https://www.osha.gov/silica/>
3. IPAA (Page 36): <http://www.ipaa.org/wp-content/uploads/downloads/2014/12/Silica-Comments.pdf>
4. CDC Silicosis Mortality, Prevention and Control – US, 1968-2002: <http://www.cdc.gov/mmWr/preview/mmwrhtml/mm5416a2.htm>
5. CDC Silicosis Mortality Trends and New Exposures to Respirable Crystalline Silica – US, 2001-2010: <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6405a1.htm>
6. NIOSH Field Effort to Assess Chemical Exposure Risks to Gas and Oil Workers: <http://www.cdc.gov/niosh/docs/2010-130/pdfs/2010-130.pdf>