

OSHA Announces New National Emphasis Program for Occupational Exposure to Isocyanates

Federal OSHA recently issued a National Emphasis Program (NEP) Directive for Occupational Exposure to Isocyanates. This directive targets certain industries that have experienced occupational employee exposures to isocyanates or industries that are known to use isocyanate containing products. This directive is a federal program, and your state OSHA may or may not implement this NEP. OSHA identified a list of target industries, including automotive repair, for random inspection. The directive can be found at this link https://www.osha.gov/OshDoc/Directive_pdf/CPL_03-00-017.pdf

Isocyanates are compounds, which are components of polyurethane paints and surface coatings. Isocyanates are increasingly used in the automotive industry and autobody repair. Activities that may involve exposure to isocyanates include spray painting and applying surface coatings, such as spray-on truck bed liner.

The most widely used compounds are diisocyanates, which contain two isocyanate groups, and polyisocyanates, which are usually derived from diisocyanates and may contain several isocyanate groups. The most commonly used diisocyanates include methylenebis(phenyl isocyanate) (MDI), toluene diisocyanate (TDI), and hexamethylene diisocyanate (HDI).

Isocyanates are powerful irritants to the mucous membranes of the eyes, nose and throat, and gastrointestinal and respiratory tracts. Health effects of isocyanate exposure include irritation of skin and mucous membranes, chest tightness, and difficult breathing. Some isocyanates are also allergic sensitizers. Cross-sensitization, in which a worker is exposed to one isocyanate, but reacts adversely to others as well, can occur. Symptoms can continue for months or years after exposure has ceased. Deaths have occurred due to both asthma and hypersensitivity pneumonitis from isocyanate exposure. Isocyanates include compounds classified as potential human carcinogens and known to cause cancer in animals. The main effects of hazardous exposures are occupational asthma and other lung problems, as well as irritation of the eyes, nose, throat, and skin.

The best option to prevent occupational exposure to isocyanates is to replace the chemical products. If substitution or chemical replacement is not feasible, other options such as engineering and administrative controls may limit occupational exposure. Administrative controls include chemical substitution and employee job rotation. Job rotation can limit cumulative exposures for any one employee. Engineering controls include good mechanical exhaust ventilation. Commercially available spray booths should provide adequate mechanical ventilation to minimize exposure to isocyanates. The least preferred option is personal protective equipment (PPE), but PPE is always recommended unless industrial hygiene studies prove employee exposure levels are reduced below OSHA limits. Adequate skin protection should be provided by use of coated coveralls such as Tyvek suits. Eye protection should be used in the form of goggles or as an integral part of full face respiratory protection. Air purifying respirators may be adequate, provided organic vapor N100 cartridges are used, and the cartridges are changed at least every 12 hours of use. The preferred respiratory protection is an air supplied full face mask or constant air flow loose fitting hood. Remember, personal protective equipment has limitations and will not protect against everything in every situation.

Now is a good time to review your current work practices. Please contact your Crandall Compliance Specialist if you have any questions or if you need assistance.

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