



May 30, 2018

## Evaluation of MDI Exposure Memorandum

As of August 8, 2013, The Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) for methylene diphenyl isocyanate (MDI) is 20 ppb as a Ceiling Limit. The recommended Threshold Limit Value-Time Weighted Average (TLV-TWA) established by the American Conference of Governmental Industrial Hygienists (ACGIH) for MDI is 5 ppb.

Three separate air monitoring tests of polyurea and polyurethane spray applied coating systems containing MDI were evaluated.

Raw Material Supplier	Field Study	VersaFlex, Inc. Production Facility
Non Detectable* (0.3 ppb) to 0.93 ppb	0.4 to 3.6 ppb	0.16 to 0.58 ppb**

All tests found the TLV-TWA for MDI exposure to be less than ACGIH limit of 5 ppb or the OSHA PEL of 20 ppb. The following are best practices when spraying aromatic polyurea;

- Prior to the start of the job, meet with the building owner and other trades on site to schedule an appropriate time to spray.
- Shut down HVAC systems or temporarily seal off (e.g., plastic sheeting and tape) outdoor air intakes on any mechanical units located near job site to avoid migration of chemical vapors and odors into structures.
- Avoid having other construction trades or other workers on job site during application.
- If other trades/workers must be on the site, establish a “safe work zone” and keep others at least 50 feet from the spray area.
- Use physical barriers (i.e., warning tape, cones, rope, etc...) to establish a safe work zone.
- Do not spray when wind speeds exceed 15 mph.
- Develop an overspray mitigation plan
- Determine in advance the potential for overspray issues
- Discuss any overspray potential with the building owner and make necessary arrangements to protect sensitive surfaces and to relocate vehicles
- Plan to use windscreens to prevent overspray mist from causing a problem
- Protect other surfaces that could be damaged from overspray (e.g., windows, skylights, mechanical equipment).
- Use appropriate PPE to prevent skin/eye contact and inhalation of spray mist/vapors. At a minimum, the applicator and helpers in the immediate spray area should wear an air-purifying respirator with pre-filters and organic vapor cartridges (i.e., OV/P100), full body disposable coverall, chemical resistant gloves (i.e., nitrile, neoprene or butyl rubber), eye protection, and work shoes.

This memorandum does not purport to address all the health concerns regarding the application of spray applied coatings and should only be used for evaluation and screening purposes. To properly assess actual employee exposures IAW OSHA requirements, please follow all local, state, and federal regulations.



# Bridge Preservation

SERVING THE RAIL AND HIGHWAY MARKETS

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\* Non-detectable at the time of equipment, based on the sampling method used.

\*\* Calculated from reported mg/m<sup>3</sup>

1. Cikalo, John: The Dow Chemical Company Industrial Hygiene *Report Personal and Area Air Monitoring for Methlene Bisphenyl Isocyanate (MDI) and Hexamethylene Diisocyanate (HDI) at Bondo Corporation, Atlanta, Georgia July 19, 200.* 2006, Sept. 8
2. Warnow, Mark J: Brittney, Incorporated *Personal Air Monitoring Report During MDI Spraying Operations on 17 March 2010 at Kansas City Facilit.* 2010, Mar. 10
3. Ecoff, Scott Karlovich, Brian: *An Evaluation of Airborne Diphenylmethane Diisocyanate (MDI), Polymeric MDI, and Diethyltoluenediamine (DETDA) During a Simulated Study Involving VersaFlex VF 380 at Cardinal Group Services Central City, PA.* 2013, Sept. 9