Isocyanate Exposure Hierarchy of Controls

ELSYS/Occupational Safety and Health Program
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Conduct Hazard Assessment

- Perform air and surface monitoring.
- Perform initial survey and observed work process flow.
- Determine secondary exposure sources.

Engineering Controls

- Substitute with less hazardous product or other form of isocyanates. (MDI and NDI evaporate more slowly than TDI and HDI.)
- Increase ventilation:
  1. Local exhaust ventilation system ("hoods") is most effective.
  2. Booth with both supply of fresh air and exhaust.
  3. Allow for three complete air exchanges in a booth before re-entering for spray on applications.
- Tightly cover containers of isocyanate paints and products.
- Lengthen handles for spray guns.

Work Practice Controls

- Isolate, enclose, or automate work processes to reduce exposures.
- Restrict Work Areas: delineate boundaries, assume surfaces in restricted areas are contaminated, establish decontamination stations.
- Use hygienic work practices.
- Do not eat, smoke, drink, or apply cosmetics where isocyanates are handled.
- Enroll employees into a medical surveillance program to monitor for signs and symptoms of sensitization.

A Comprehensive Training Program

- *Potential Health Effects (i.e., sensitization hazards)
- *Personal Protective Equipment (in particular glove use)
- *Hazard Communication
- *Respiratory Protection (i.e., storage and handling)
- *Work Practices and Engineering Controls

PPE

Glove and skin protection *very* important:

1. Butyl rubber gives best protection.
2. Natural rubber (latex), nitrile rubber, chlorinated polyethylene, and polyvinyl alcohol provide fair protection.
3. Neoprene and polyvinyl chloride are not recommended.
4. Remember gloves break down—replace often.

- Use tools to keep hands off materials.
- Gloving a contaminated hand increases absorption.
- Use eye and face protection to protect from corrosive vapors (i.e., goggles and face shields).

Respiratory Protection

- Recommended for overexposures: NIOSH-approved supplied-air respirator
- Increase protection by using an auxiliary SCBA
- Air-purifying respirators may be worn: 1. Must develop change-out schedule based on air monitoring. 2. Must take into account changes in environmental factors such as humidity. 3. Must have both organic vapor and particulate filters.
- Respiratory protection is recommended to always be used in operations where exposures may fluctuate due to changing environments.
- Provide employees with a comprehensive respiratory protection program.

For more information please visit: www.oshainfo.gatech.edu