SAFETY TALKS

Isocyanates

Isocyanates

Isocyanates are known as strong irritants and dermal sensitizers of the body's mucosal membranes, that can cause serious irritants/asthmatic reactions to the eyes, gastrointestinal and respiratory tracts. Direct skin contact and respiratory exposure contact can cause inflammation and can sensitize workers making them subject to severe asthma attacks if they are exposed again. Workers potentially exposed to isocyanates who experience persistent symptoms including consistent cold-like symptoms or chest tightness should see a physician knowledgeable in work-related health issues. Isocyanates are highly reactive with water and other industrial compounds making them become airborne vapours when at room temperature. Products that may contain isocyanates include spray-on polyurethane which can be released through spray foams, varnishes, paints, rigid foams, fibers, coatings such as paints and varnishes, elastomers, protective coatings for truck beds, trailers, boats, foundations, and decks, etc.

What's the Danger?

With as little as one exposure, isocyanates can cause severe acute and chronic health effects. Acute exposure commonly occurs within a single exposure and typically has short-term effects, whereas chronic exposure can occur over time and result in long-term health effects. Symptoms can be delayed and go untreated if medical surveillance or symptoms are not monitored. Examples of exposure symptoms include:

Acute Exposure	Chronic Exposure
• **Eye Irritation** – itchiness, burning, watery eyes, and temporary blurred vision.	• **Sensitization** – allergic reactions; including asthma, dermatitis, hives, rashes
• **Inflammatory Reaction** – pain, redness, and swelling.	• **Diseases** – Liver and Kidney
• **Gastrointestinal Distress and Headaches** – vomiting, nausea, and headaches.	• **Cancer**
• **Irritation to the Respiratory System** – coughing, wheezing, shortness of breath, chest tightness	• **Chronic Lung Damage & Respiratory Disease**

Isocyanate Control Measures Include:

Elimination or Substitution

- Substitute or eliminate hazardous isocyanates for less hazardous products
- Minimize the usage and exposure

Engineering

- Ventilation - fume hoods, exhaust system, air filters, etc.
- Enclosures/closed systems – spray booths, isolated ventilated room, etc.

Administrative

- Training – educate workers on the hazards, risks, and procedures.
- Safe Work Procedures
- Medical Surveillance

Personal Protective Equipment

- Respiratory Protection – approved respirators and fit testing.
- Protective Clothing - can include gloves, protective footwear, goggles, and coveralls.

SAFETY TALKS

Isocyanates

Safety Tips

- ✔ Minimize health risks by reducing contact with isocyanates as much as possible. Ensure workers are not exposed to above-the-threshold limit value, ceiling values, and time-weighted average as guided by ACGIH.
- ✔ Train and educate all workers working with or in surrounding areas of isocyanates on the hazards, risks, symptoms, and procedures. Close off paint areas with time-restricted entry posted,
- ✔ Install adequate ventilation systems and ensure they are maintained and correctly designed for needs. Be alert for ventilation issues, especially in enclosed areas.
- ✔ Read and understand the Safety Data Sheets (SDS) checking for the full isocyanate family including the most widely used diisocynates and polyisocyanates including HDI biuret and HDI isocyanurate.
- ✔ Know the hazards and safe work practices for all chemicals and paints that you work with, including how to clean up and properly dispose of spills.
- ✔ Before assigning workers to work with isocyanates have workers complete a baseline health assessment and a follow-up health assessment as needed to ensure medically able to work with isocyanates workers are fit for duty.
- ✔ Provide workers with the required PPE and train workers on how to use, inspect, store, and maintain the PPE.
- ✔ Have all workers working with isocyanates fit tested for respirators at a minimum every 2 years and ensure they are trained on how to maintain, use, and inspect the respirators.
- ✔ Report any symptoms immediately when noticed, including both acute and chronic symptoms.
- ✔ Provide emergency washing stations nearby and inspect emergency washing equipment weekly
- ✔ Ensure preventative maintenance is occurring on paint booths including fire suppression systems inspections and following a filter change schedule.
- ✔ Provide appropriate storage containments for isocyanates and inform workers of the procedures. Keep lids on all products when not in use.
- ✔ Implement visual signage to inform all workers of areas that contain isocyanates and to ensure only authorized personnel enter. Provide “no entry” signage when tasks are being conducted to alert other workers.
- ✔ Discuss with workers personal hygiene practices including preventing contamination.

Demonstrate

Show workers the location of SDS and review the most common isocyanates.

Show areas that are considered high risk and discuss chemical storage procedures.

Discussion

What are some tasks that you perform that expose you to isocyanates?

What should you do if you are experiencing symptoms of isocyanate exposure?

What are products that contain isocyanates within the workplace?

DID YOU KNOW?

Isocyanates enter the body primarily through inhalation or skin exposure. Skin protection and ventilation are the most important factors to protect your health against isocyanate exposure.

SAFETY TALKS

Isocyanates

Manitoba Workplace Safety and Health Act and Regulation

- Part 4 General Workplace Requirements
- Part 6 Personal Protective Equipment
- Part 35 Workplace Hazardous Materials Information System
- Part 36 Chemical and Biological Substances Application

CAN/CSA-Z94.4-02 – Selection, Use, and Care of Respirators
CAN/CSA-Z180.1-13, Compressed Breathing Air and Systems

Workers Involved in this Safety Talk

Date:_____

Name	Signature

Name	Signature

Notes

Please contact S2SA with any questions or concerns!
info@s2sa.ca 204-779-8296