Standard Operating Procedure

Isophorone diisocyanate

**This is an SOP template and is not complete until: 1) lab specific information is entered into the box below 2) lab specific protocol/procedure is added to the protocol/procedure section and
3) SOP has been signed and dated by the PI and relevant lab personnel.**

Print a copy and insert into your *Lab-Specific Chemical Hygiene Plan*.

**Section 1 – Lab-Specific Information**

| **Building/Room(s) covered by this SOP:** | Click here to enter text. |
| --- | --- |
| **Department:** | Click here to enter a date. |
| **Principal Investigator Name:** | Click here to enter text. |
| **Principal Investigator Signature:** | Click here to enter text. |

**Section 2 – Hazards**

Isophorone diisocyanate is acutely toxic, causes skin and eye irritation, a respiratory sensitizer, and a specific target organ toxin (single exposure respiratory system). It is both an acute and chronic aquatic toxin. Isophorone diisocyanate may be fatal if inhaled and may be harmful if ingested or absorbed through the skin. It causes irritation to the respiratory tract, gastrointestinal tract, skin, and eyes. It may cause allergy, asthma symptoms, or breathing difficulties. Symptoms of exposure include nausea, vomiting, diarrhea, headache, coughing, and shortness of breath.

**Exposure Limits:**

OSHA PEL (8 HR. TWA): 0.0050 ppm

OSHA Short Term Exposure Limit: 0.02 ppm

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**Section 3 – Engineering Controls and Personal Protective Equipment (PPE)**

**Engineering Controls:** Isophorone diisocyanate must be used in a properly functioning chemical fume hood whenever possible. The chemical fume hood must be approved and certified by REM and have a face velocity between 80 – 125 feet per minute.

**Hygiene Measures:** Avoid contact with skin, eyes, and clothing. Wash hands before breaks and immediately after handling the product.

**Hand Protection:** Gloves must be worn. Nitrile or chloroprene gloves are recommended and have been shown to provide excellent protection against isophorone diisocyanate. The user should wear two pairs of gloves as a precautionary measure. Use proper glove removal technique to avoid any skin contact. Never reuse disposable gloves. **NOTE:** Consult with your preferred glove manufacturer to ensure that the gloves you plan on using are compatible with isophorone diisocyanate.

**Eye Protection:** ANSI approved properly fitting safety glasses or chemical splash goggles are required. If there is an elevated risk of splash hazard, a face shield and chemical splash goggles must be used.

**Skin and Body Protection:** Laboratory coats must be worn and be appropriately sized for the individual and buttoned to their full length. Personnel must also wear full length pants, or equivalent, and close-toed shoes. Full length pants and close-toed shoes must be worn at all times by all individuals that are occupying the laboratory area. The area of skin between the shoe and ankle must not be exposed.

**Respiratory Protection:** If isophorone diisocyanate is being used outside of a chemical fume hood, respiratory protection is required. If the respirator is the sole means of protection, use a full-face supplied air respirator. If this activity is necessary, contact REM (49-46371) so a respiratory protection analysis can be performed.

**Section 4 – Special Handling and Storage Requirements**

* A designated storage area must be established for isophorone diisocyanate and the area should be posted with a “Caution, Carcinogen, Reproductive Toxins, or Extremely Toxic Chemicals” label provided by REM (as shown to the right). The container(s) should be placed into secondary containment.
* All personnel working in the lab should be made aware of the storage location and the hazards associated with isophorone diisocyanate.
* Isophorone diisocyanate must only be used in a properly functioning chemical fume hood.
* Do not breathe dust, fumes, gas, mist vapors or spray.
* Avoid dust formation or breathing vapors, mists, or gas.
* Keep containers tightly closed.
* Store in a cool, dry and well-ventilated location away from strong oxidizing agents, strong acids, and alcohols.
* Containers which are opened must be carefully resealed and kept upright to prevent leakage.
* A suitable storage location is a lab cabinet that does not contain incompatible chemicals.

**Section 5 – Spill and Accident Procedures**

Immediately evacuate area and ensure others are aware of the spill. If there is an imminent threat of a fire, pull the nearest fire alarm station to evacuate the building and **dial 911**. If personnel have become exposed and need medical assistance, **dial 911**. If the spill is minor and does not pose a threat to personnel, contact REM at 49-40121 during normal business hours (Monday – Friday, 7 AM – 4 PM) for spill cleanup assistance (dial 911 if spill occurs after hours and assistance is needed).

**Section 6 – Waste Disposal Procedures**

Store hazardous waste in closed containers that are properly labeled, and in a designated area. Complete a Chemical Waste Pickup Request Form to arrange for disposal by REM; detailed instructions are provided at the following link: <http://www.purdue.edu/ehps/rem/hmm/chemwaste.htm>.

**Section 7 – Protocol/Procedure (Add lab specific Protocol/Procedure here)**

Click here to enter text.

**NOTE:** Any deviation from this SOP requires approval from PI.

**Section 8 – Documentation of Training (signature of all users is required)**

Prior to conducting any work with isophorone diisocyanate, the Principal Investigator must ensure that all laboratory personnel receive training on the content of this SOP.

**I have read and understand the content of this SOP:**

| **Name** | **Signature** | **Date** |
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