**Standard Operating Procedure for Laboratories**

 **PHOSGENE**

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| --- | --- |
| Department: | Click here to enter text. |
| Principal Investigator(s): | Click here to enter text. |
| Lab Manager/Coordinator: | Click here to enter text. |
| Location of Experiment: (Building/Room Number) | Click here to enter text. |
| Lab Phone: | Click here to enter text. |
| Office Phone: | Click here to enter text. |
| Emergency Contact: (Name/Phone) | Click here to enter text. |

**Reviewed and Approved by**:

|  |  |
| --- | --- |
| PI: (Typed Name) | Click here to enter text. |
| PI: (Signature and Date) |  | Click here to enter a date. |
| Lab Manager: (if PI unavailable) |  | Click here to enter a date. |

**Hazardous Material Use and Management**

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| Hazardous Material(s) Used: (wt./volume) | Phosgene:Maximum amount allowed without PI approval: |
| Hazardous Material Storage Location: | Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials. Incompatible with water, alkalis, ammonia, alcohols and copper. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling.Designated Storage Area: |
| Experimental Procedure and Lab Techniques to be Used:  | Lab must have written procedures for cylinder purge, set up and swap. |
| Hazard Identification: (i.e., physical/health hazards) | **CAS # 75-44-5****GHS Classification: Gas under pressure. Acutely toxic. Corrosive. Severe skin and eye irritant.** * A human poison by inhalation.
* Severe eye, skin and mucous irritant.
* Under certain conditions it reacts violently with aluminum, tetrabutyl alcohol, potassium, sodium, sodium azide and lithium.
* In presents of moisture it decomposes to form hydrochloric acid, carbon monoxide and depending on the reaction condition decompose to isocyanates.

OSHA PEL: TWA 0.1ppm (0.4mg/m3)ACGIH TLV: TWA 0.1ppmNIOSH REL: TWA 0.1ppm, CL 0.2 ppm (0.8mg/m3) Review MSDS/SDS prior to working with chemical. |
| Engineering Controls: (chemical fume hood, biosafety cabinet, glove box) | Use in a chemical fume hood with good ventilation and electrically grounded lines and equipment. There may be not immediate warning that dangerous concentrations are present. Toxic gas detection system should be installed for detection of phosgene in the air. Phosgene used in anhydrous equipment with anhydrous reagents is not corrosive to ordinary metals. In presents of moisture it’s very corrosive to metals, in this conditions monel, tantalum or glass-lines equipment should be used.Eyewash and safety shower must be readily available. |
| Protective Equipment: | Handle with chemically resistant gloves. Wear tightly fitting safety goggles. Wear full length lab coat to prevent skin exposure.Always check with glove manufacturer for more info. |
| Waste Collection/Disposal Method: | Empty gas cylinders should be returned to the compresses gas distributer. Make sure that valve protection cap is in place.All other waste should be collected in tightly closed one-quart container, in secondary containment and in a designated location inside a fume hood. Store waste away from incompatible waste. Affix and complete hazardous waste label. Contact REHS for waste pick up.<https://halflife.rutgers.edu/forms/hazwaste.php> |
| Spill Management:  | Evacuate surrounding areas. Keep personnel from entering. Do not breathe gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. If safe, stop the gas leak. Put on appropriate personal protective. Phosgene spill can be cleaned with 5% sodium hydroxide solution.If a spill happened outside fume hood, on floor, on bench or outside the lab contact REHS for clean up or call 911. |
| First Aid: | Latent period up to 36 hours.**Eyes**: Check and remove contact lenses. Immediately flush eyes with warm water for 15 min. Seek medical attention. **Skin**: Remove contaminated clothing. Immediately flush skin with plenty of lukewarm water. Seek medical attention.**Inhalation:** Remove to fresh air. If breathing is difficult give oxygen. Gently wrap affected area in blankets to warm up. Call a poison center. Seek medical attention.**Ingestion**: Seek medical attention. |

**Training**

* Prior to conducting any work with phosgene, designated personnel must be provided training specific to the hazard involved in working with the substance.
* The PI must provide his/her lab personnel with a copy of the SOP and a copy of the SDS provided with the manufacturer.
* The PI must ensure that his/her lab personnel have attended and are up to date on the appropriate laboratory safety training within the last year.

I have read and understood the content of this SOP and the SDS:

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| --- | --- | --- |
| Lab Personnel (Running the Experiment) | Date of Hands-on Training from Department | Signature of Lab Personnel |
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| Click here to enter text. | Click here to enter text. |  |

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**Ingestion**: Seek medical attention.

**DIAL 911 Call REHS for more information 848-445-2550**