**Standard Operating Procedure for Laboratories**

**BENZENE**

|  |  |
| --- | --- |
| Department: | Research |
| 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**

|  |  |
| --- | --- |
| Hazardous Material(s) Used: (wt./volume) | Benzene:  Maximum amount allowed without PI approval: |
| Hazardous Material Storage Location: | Store in a tightly closed container, in cool, dry, well-ventilated area. Keep away from sources of ignition and oxidizing materials. Take measures against static discharge.  Designated Storage Area: |
| Experimental Procedure and Lab Techniques to be Used: | Click here to enter text. |
| Hazard Identification: (i.e., physical/health hazards) | **CAS # 75-12-7**  **GHS Classification: Flammable liquid. Irritant to skin and eyes. Germ cell mutagen. Carcinogen. Aspiration hazard. Harmful to aquatic life with long lasting effects.**   * Confirmed human carcinogen producing myeloid leukemia, Hodgkin’s disease and lymphomas by inhalation. * Poison by inhalation. Moderately toxic by ingestion. * Severe eye and skin irritant. * Has narcotic effects. * Human mutation data reported. Effects can be seen at less than 1ppm. * Dangerous fire hazard when exposed to heat or flame. Explodes on contact with diboran, bromine pentafluoride, permanganic acid, peroxomonosulfuric acid and peroxodisulfuric acid. * Forms sensitive explosive mixtures with iodine, pentafluoride, silver perchlorate, nitryl perchlorate, nitric acid, liquid oxygen, ozone, etc. Ignites on contact with sodium peroxide and water, dioxygenyl tetrafluoroborate, etc.   OSHA PEL: TWA 1ppm, STEL 5ppm, cancer hazard  ACGIH TLV: TWA 0.5ppm, STEL 2.5ppm, skin, confirmed human carcinogen.  NIOSH REL: TWA 0.1ppm, STEL 1ppm, carcinogen  Review MSDS/SDS prior to working with chemical. |
| Engineering Controls: (chemical fume hood, biosafety cabinet, glove box) | Use only in chemical fume hoods with adequate exhaust ventilation and face velocity not less than 100 cfm. Laboratory rooms must be at negative pressure with respect to the corridors and external environment. The laboratory/room door must be kept closed at all times. Vacuum lines should be protected by HEPA filters or higher efficiency scrubbers.  Safety shower and eye wash must be readily available. |
| Protective Equipment: | Always handle with gloves. Fluorinated rubber or nitrile gloves are sufficient. Wear safety glasses with side shields, face shield may be recommended. Wear flame resistant lab coat, long pants and closed-toe shoes.  Check with glove manufacturer for more info. |
| Waste Collection/Disposal Method: | Waste should be collected in tightly closed one-quart container, in secondary containment and in a designated location inside a fume hood. Affix and complete hazardous waste label. Affix and complete hazardous waste label. Contact REHS for waste pick up.  <https://halflife.rutgers.edu/forms/hazwaste.php> |
| Spill Management: | Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentration in low areas. Absorb spill with inert material (vermiculate, sand, earth) or by wet brushing and place in container for disposal No waste streams containing benzene shall be disposed of in sinks. Decontaminate work space with 70-75% ethanol.  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: | Eyes: Flush eyes with warm water for 15 min. Consult a physician.  Skin: Flush affected skin with plenty of water. Consult a physician.  Inhalation: Remove to fresh air. If breathing is difficult give oxygen. Consult a physician.  Ingestion: Rinse mouth with water. Consult a physician. |

**Training**

* Prior to conducting any work with benzene, 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:

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

**BENZENE**

**Flammable liquid. Irritant to skin and eyes. Carcinogen. Aspiration hazard. Harmful to aquatic life with long lasting effects.**

****

**FIRST AID**

**Eyes:** Flush eyes with warm water for 15 min. Consult a physician.

**Skin:** Flush affected skin with plenty of water. Consult a physician.

**Inhalation:** Remove to fresh air. If breathing is difficult give oxygen. Consult a physician.

**Ingestion:** Rinse mouth with water. Consult a physician.

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