**Standard Operating Procedure**

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| **Chemical name/class:** | **Benzene** | **CAS #: 71-43-2** |
| **PI:** |  | **Date:** |
| **Building:** |  | **Room #:** |

1. **Circumstances of Use:**

***This SOP must be customized for each lab using Benzene. Use this section to describe the circumstances of use, including concentration and quantity as well as identification of a designated work area.***

2. **Potential Hazards:**

 Benzene is a **known human carcinogen.**

 Benzene is **extremely flammable.**

 Benzene affects the blood and blood forming organs of the body, leading to irreversible injuries such as anemia

and leukemia.

 Inhalation of Benzene can cause dizziness, giddiness, headache, drowsiness, and weakness. Benzene readily penetrates the skin to cause the same toxic effects as inhalation or ingestion.

 The OSHA Permissible Exposure Limit for Benzene is 1 ppm over an 8 hour day.

 For more information, refer to *Prudent Practices in the Laboratory* (National Academies Press)

<http://www.nap.edu/read/4911/chapter/14#264>

3. **Engineering Controls:**

 Benzene should be used in a glove box or in a closed system in a certified chemical fume hood.

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| 4. | **W** | **ork Practice Controls:** |
|  |  | ***It is expected that only competent persons with specific training and experience will be handling Benzene or its mixtures.*** |
|  |  | Benzene should only be used in areas free from ignition sources. Proper PPE should be worn when working with this chemical. |
|  |  | Work with this chemical should always be conducted with a fully functional and tested eyewash station nearby. |

5. **Personal protective equipment (PPE):**

 PPE: Splash goggles, nitrile gloves, and full length lab coats are recommended when handing benzene. Respiratory protection is generally not practical in most situations, with reliance on engineering controls most acceptable.

* If a respirator is required, a full face respirator with organic vapor cartridges is suitable in most cases.

6. **Transportation and Storage:**

 **Group I – Flammable Liquid. Do not store near oxidizers or inorganic acid. Ensure that the container is tightly closed at all times. Benzene should be stored with other flammables.**

 Avoid all possible sources of ignition during the storage of this material.

 Transport of Benzene should be conducted in secondary containment.

7. **Waste Disposal:**

Handle and store following the guidelines above while accumulating wastes and awaiting chemical waste pickup. Chemical waste must be disposed of following UNC Charlotte’s Laboratory Chemical Waste Management practices: <http://safety.uncc.edu/laboratory-and-research-safety/hazardous-universal-waste>

8. **Exposures/Unintended contact:**

 Skin: Remove all contaminated clothing. Flush the affected area for fifteen minutes with large amounts of water. Seek medical attention.

 Eye: Remove contact lenses. Immediately flush eyes for fifteen minutes. Take victim to a physician as soon as possible.

 Inhalation: Immediately move to fresh air. Seek immediate medical attention.

 Ingestion: Keep respiratory tract clear. Do not attempt mouth to mouth recovery as contamination is likely.

 **Medical attention:** In the event of minimal skin contact, contact Student Health Center at 687-7400. For all other exposures, immediately call 911 from a campus phone, or 687-2200 (police) from a landline.

The work-related injury or illness report found at:

<https://safety.uncc.edu/services/workers-compensation>

9. **Spill Procedure:**

In the event of a small spill of benzene, remove all ignition sources from the area. Inform personnel in the immediate area of the spill and ensure they are a safe distance from the spill. Soak up the benzene with absorbent material (vermiculite) or a spill pillow, place in a container, and label the container with the contents of the container and the words “Hazardous Waste.” Contact EHS for disposal.

On the UNC Charlotte campus, “large” spills of benzene must be referred to the Campus Police by calling 911 from a campus phone or 704-687-2200 from any landline or cellphone.

10.  **Training of personnel:**

All personnel are required to complete the UNC Charlotte EHS Laboratory Environment Training Checklist. This checklist includes an introduction to general chemical safety as well as review of the laboratory specific safety plan. Furthermore, all personnel shall read and fully adhere to this SOP when handling the chemical.

**“I have read and understand this SOP. I agree to fully adhere to its requirements.”**

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| **Last** | **First** | **UNC Charlotte ID** | **Signature** |
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