**Standard Operating Procedure**

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

1. **Circumstances of Use:**

***This SOP must be customized for each lab using Toluene. 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:**

 Toluene is a **highly flammable liquid,** with vapors being able to travel long distances to an ignition point.

 Toluene is harmful if inhaled, affecting both the nervous system and the kidneys.

 Toluene is primarily an irritant if exposure occurs, with little evidence of effects due to long term , low level exposures.

 The OSHA Permissible Exposure Limit for Benzene is 200 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#404>

3. **Engineering Controls:**

 Toluene should be used in areas where there are no open flames or other sources of ignition.

* Toluene should be used in a chemical fume hood and not out on an open bench.

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| 4. | **W** | **ork Practice Controls:** |
|  |  | ***Laboratory-specific written procedures are required for work with Benzene, including a designated work area****.* |
|  |  | ***It is expected that only competent persons with specific training and experience will be handling Toluene or its mixtures.***  |
|  |  | Toluene should only be used in areas free from ignition sources. Proper PPE should be worn when working with this chemical. |
|  |  | If transferring liquids, ground and bond all containers to prevent static spark ignition. |

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

 PPE: Splash goggles, nitrile gloves, and full length lab coats are recommended when handing Toluene. 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 acids.**
* **Store Toluene in a flammable storage cabinet and not out on an open bench.**
* **Transport Toluene within a secondary container capable of holding all materials in the event of a spill. Acceptable means include plastic bottle carriers or non-metal liquid-tight carts with lips on all four sides.**

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. Immediately wash with soap and water.

 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: Do not induce vomiting. Obtain medical attention immediately.

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 Toluene, 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 Toluene with absorbent material (vermiculite) or a spill pillow, place in a closable 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 Toluene 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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