**Standard Operating Procedure**



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Chemical name/class:** | **Acrylamide** | **CAS #:** | **79-06-1** |
| **PI:** |  | **Date:** |  |
| **Building:** |  | **Room #:** |  |
| 1. | **Circumstances of Use:** |  |  |  |

Acrylamide is commonly used in labs for polyacrylamide gel electrophoresis and to aid in DNA precipitation.

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

• Acrylamide is considered an OSHA Particularly Hazardous Substance because it is a probable human carcinogen.

• Possible routes of exposure include inhalation, skin contact, eye contact, and ingestion. Acrylamide is highly toxic by inhalation and skin contact. It can easily penetrate intact skin.

• Acrylamide is known to affect the nervous system with early signs of exposure including numbness, tingling, and tenderness to touch. Symptoms can be delayed several days to weeks and if exposure continues symptoms may arise including excessive sweating, blue-reddish skin, peeling of skin, and weakness in limbs.

• Animal studies have shown some maternal and paternal reproductive health effects from exposure to acrylamide.

• Acrylamide may explode if heated to 183°F (84°C)

• For further safety information, refer to Prudent Practice’s:

[http://www.nap.edu/openbook.php?record\_id=4911&page=250](http://www.nap.edu/read/4911/chapter/14%22%20%5Cl%20%22250)

The OSHA Permissible Exposure Limit (PEL) for acrylamide is 0.3 mg/m3 over an 8 hour period.

3. **Engineering Controls:**

If dusts/aerosols may be produced (e.g., weighing powder), acrylamide and any suspensions of acrylamide must be handled in a chemical fume hood, exhausted biological safety cabinet with negative pressure ductwork, or other exhausted enclosure. Aerosols may be produced during any open handling of dry powder, and during open or pressurized manipulations of suspensions.

4. **Work Practice Controls:**

• When possible, order pre-cast polyacrylamide gels to avoid work with acrylamide powder. Acrylamide can also be ordered already in solution.

• Set up a designated area for work with acrylamide and suspensions thereof, and label it.

• Avoid contact with incompatibles including metals, oxidizing agents, reducing agents, acids, bases, and peroxides.

• Use bench pads to cover areas that may become contaminated with acrylamide powder or suspensions for easy clean-up.

• Wipe down the surfaces where acrylamide is used periodically with a detergent and water solution.

• If weighing dry acrylamide powder and the balance cannot be located in a fume hood or BSC, tare a container then add the material to the container in a hood and seal the container before returning to the balance to weigh the powder.

• Change gloves regularly (at least every two hours) and wash hands at the time of the glove change.

• Keep away from heat and flame.

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

• Standard nitrile laboratory gloves and a fully buttoned lab coat with sleeves extending to the wrists should be worn when handling acrylamide. When handling suspensions or solutions, choose a glove that is protective against the solvent. If gloves are splashed or come in contact with acrylamide, change them as soon as possible.

• If splashes may occur, wear goggles. Otherwise, wear standard laboratory safety glasses.

• In cases where the arms or torso may be exposed to liquid suspensions or dry particles, wear Tyvek sleeves and/or gowns (or other air-tight non-woven textile).

6. **Transportation and Storage:**

• Group VII – non-volatile toxin

• Store away from heat and flame.

• Store acrylamide away from any incompatible materials including metals, oxidizing agents, reducing agents, acids, bases, and peroxides.

• Acrylamide must be in sealed shatter-resistant containers during transportation. If the container is not shatter- resistant, use a secondary container.

7. **Waste Disposal:**

Unwanted acrylamide (and suspensions) must be disposed of following your laboratory specific procedures and the requirements of UNC Charlotte’s Laboratory Chemical Waste Management Practices <https://safety.uncc.edu/services/laboratory-research-safety/hazardous-universal-waste>

8. **Exposures/Unintended contact:**

• Remove contaminated clothing. Flush exposed eyes or skin with water for at least 15 minutes, then seek medical attention.

• For situations with risk of inhalation exposure (including spills of powder outside of a chemical fume hood), remove all persons from the contaminated area and contact the OESO spill team.

• Call 911 from a campus phone or 687-2200 from any phone to request assistance if needed.

Contact the Student Health Center at 704-687-7400 for medical advice on occupational chemical exposures. For an actual chemical exposure, complete the work-related injury or illness report found at: <https://safety.uncc.edu/services/workers-compensation>

9. **Spill Procedure:**

• Spills of liquid suspensions should be absorbed with sand or other non-combustible absorbent material and placed in containers for disposal. Decontaminate the area with 1.6% potassium persulfate, followed by 1.6% sodium metabisulfite. Cordon off the area and let stand for 30 minutes, then wash/wipe area with plenty of water.

• For spills of dry powders in a chemical fume hood or other enclosure, wipe up the powder using a cloth dampened with water, or wet the powder with water and then wipe with a dry cloth. Minimize the fume hood or enclosure opening during this process. Decontaminate the area with the solutions mentioned in the previous bullet. Contact EH&S for disposal.

• Spills of dry acrylamide powder outside of a chemical fume hood or other enclosure should be referred to campus police at 7-2200 or 911 from a campus phone.

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.”**

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