Standard Operating Procedure

**Acrylamide and bis-acrylamide**

*This is an SOP template and is not complete until: 1) lab specific information is entered into the box below 2) lab specific protocol/procedure is added to the protocol/procedure section and
3) SOP has been signed and dated by the PI and relevant lab personnel.*

 Print a copy and insert into your
*Laboratory Safety Manual* and *Chemical Hygiene Plan*.
Refer to instructions for assistance.

|  |  |
| --- | --- |
| **Department:** | Click here to enter text. |
| **Date SOP was written:** | Click here to enter a date. |
| **Date SOP was approved by PI/lab supervisor:** | Click here to enter a date. |
| **Principal Investigator:** | Click here to enter text. |
| **Internal Lab Safety Coordinator/Lab Manager:** | Click here to enter text. |
| **Lab Phone:** | Click here to enter text. |
| **Office Phone:** | Click here to enter text. |
| **Emergency Contact:** | Click here to enter text. |
| *(Name and Phone Number)* |
| **Location(s) covered by this SOP:** | Click here to enter text. |
| *(Building/Room Number)* |

**Type of SOP:** [ ]  Process [x] Hazardous Chemical [ ]  Hazardous Class

**Purpose**

Acrylamide and bis-acrylamide are both select carcinogens and neurotoxins. They are used in polymerized form to analyze the size of proteins and protein-DNA complexes in gel electrophoresis. Acrylamide is purchased as a liquid solution which is highly toxic due to the high potential of absorption through the skin yet this exposure is diminished when acrylamide is in its polymerized form.

**Physical & Chemical Properties/Definition of Chemical Group**

CAS#: 79-06-1 (Acrylamide); 110-26-9 (Bis-acrylamide)

Class: **Select carcinogen, neurotoxin**

Molecular Formula: C3H5NO (Acrylamide); C7H10N2O2 (Bis-acrylamide)

Form (physical state): Liquid

Color: N/A

Boiling point: N/A

**Potential Hazards/Toxicity**

Select Carcinogens are a category of chemicals where the available evidence strongly indicates that the substances cause human carcinogenicity.

Acrylamide is also toxic if in contact with skin or swallowed. It is irritating to eyes and skin. It may cause sensitization by inhalation and skin contact and is readily absorbed through skin. The target organs are nerves and kidneys.

**Personal Protective Equipment (PPE)**

**Respiratory Protection**

A ½ or full face respirator equipped with appropriate cartridges should be used any time there is the potential for exposure to vapor and/or dust and a fume hood cannot be used

Respirators should be used only under any of the following circumstances:

* As a last line of defense (i.e., after engineering and administrative controls have been exhausted).
* When Permissible Exposure Limit (PEL) has exceeded or when there is a possibility that PEL will be exceeded.
* Regulations require the use of a respirator.
* An employer requires the use of a respirator.
* There is potential for harmful exposure due to an atmospheric contaminant (in the absence of PEL)
* As PPE in the event of a chemical spill clean-up process

Lab personnel intending to use/wear a respirator mask must be trained and fit-tested by ORS and should contact occhealt@uga.edu. This is a UGA requirement described in more detail in the [UGA Respiratory Protection Plan](https://esd.uga.edu/sites/default/files/respiratoryprotection.pdf) and supported by the [Office of Research Occupational Health and Safety Program](https://research.uga.edu/ohsp/).

**Hand Protection**

Nitrile gloves are recommended.

NOTE: Consult with your preferred glove manufacturer to ensure that the gloves you plan on using are compatible with Acrylamide and bis-Acrylamide

Refer to glove selection chart from the links below:

<http://www.ansellpro.com/download/Ansell_8thEditionChemicalResistanceGuide.pdf>

OR

<http://www.allsafetyproducts.biz/page/74172>

OR

<http://www.showabestglove.com/site/default.aspx>

OR

<http://www.mapaglove.com/>

**Eye Protection**

ANSI approved safety glasses or goggles are recommended.

**Skin and Body Protection**

Lab coat, long pants, and closed-toe shoes are required.

**Hygiene Measures**

After working with acrylamide, immediately remove gloves, wash hands and arms with soap and water.

**Engineering Controls**

Work with acrylamide solutions in a certified ducted fume hood.

**First Aid Procedures**

**If inhaled**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician

**In case of skin contact**

Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately

**In case of eye contact**

Immediately flush eyes with copious amounts of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately

**If swallowed**

Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Call a physician.

**Special Handling and Storage Requirements**

**Precautions for safe handling**

When working with acrylamide, the area must be labeled with a sign stating “CAUTION, CANCER HAZARD – SELECT CARCINOGEN”.

**Conditions for safe storage**

The storage space (i.e. refrigerator) must also be labeled with a sign stating “CAUTION, CANCER HAZARD – SELECT CARCINOGEN”, and acrylamide must be stored in a secondary container.

**Spill and Accident Procedure**

**Chemical Spill Dial 911**

**24-7 On-Call Response to Research, Environment, Health or Safety Concerns Dial 2-5561 from a campus phone or 706-542-5561 from a non-campus line.**

**Spill** – Follow the procedures set out in the [UGA Chemical and Laboratory Safety Manual.](http://research.uga.edu/docs/units/safety/manuals/Chemical-Laboratory-Safety-Manual.pdf)

[If there are any chemical-specific protocols for responding to a spill, insert them here or mark “none”:]

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# **Medical Emergency Dial 911**

**Life Threatening Emergency, After Hours, Weekends And Holidays** – Dial **911** or the emergency phone numbers listed at the beginning of the UGA Chemical and Laboratory Safety Manual

*Note: All incidents that result in an injury or property damage must be reported to ORS / ESD using a University Incident/Accident Report.*

**Non-Life Threatening Emergency** – Follow the instructions in the UGA Chemical and Laboratory Safety Manual.

*Note: All incidents that result in an injury or property damage must be reported to ORS / ESD using a University Incident/Accident Report.*

**Decontamination/Waste Disposal Procedure**

**For general hazardous waste disposal procedures, see Appendix H of the UGA Chemical and Laboratory Safety Manual.**

**Chemical Specific Procedures: [to be inserted or marked as “none”]**

Lab coats must be decontaminated before they are removed for laundering. This may be accomplished by washing the affected area in small container of soap and water. Dispose of the soap and water as hazardous waste.

Laboratory work surfaces and equipment shall be decontaminated at the conclusion of each procedure and at the end of each day. Use a soapy, wet paper towel to clean the affected areas and dispose of the paper towel as hazardous waste.

**Safety Data Sheet (SDS) Location**

UGA personnel can access Online SDS through a link in the upper left corner of the ESD home page (<https://esd.uga.edu>) and logging in by using their UGA email user name and password.

**Protocol/Procedure (Add lab specific Protocol/Procedure here)**

Click here to enter text.

**NOTE**

Any deviation from this SOP requires approval from PI.

**Documentation of Training** (signature of all users is required)

* Prior to conducting any work with Acrylamide and bis-Acrylamide, designated personnel must provide training to his/her laboratory personnel specific to the hazards involved in working with this substance, work area decontamination, and emergency procedures.
* The Principal Investigator must provide his/her laboratory personnel with a copy of this SOP and access to the SDS provided by the manufacturer.
* The Principal Investigator must ensure that his/her laboratory personnel have attended appropriate laboratory safety training or refresher training within the last 12 months.

I have read and understand the content of this SOP:

|  |  |  |
| --- | --- | --- |
| **Name** | **Signature** | **Date** |
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