





LABORATORY SAFETY GUIDELINE

Acrylamide [CAS No. 79-06-1]

All individuals at Harvard who use acrylamide powders or solutions must review this document and should contact their EHS Laboratory Safety Advisor and department safety officer prior to using these substances.

HAZARDS

	<p>Acrylamide powders and solutions are toxic if swallowed, inhaled, or absorbed through the skin. They can cause severe and irreversible health effects to organs through prolonged or repeated oral exposure. 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 (even in small quantities), other symptoms may arise including excessive sweating, blue-reddish skin, peeling of skin, and weakness in limbs.</p> <p>It is a mutagen and teratogen and is classified by IARC as Probably Carcinogenic to Humans (Group 2A).</p>
	<p>Exposure to Acrylamide may also cause skin irritation and/or an allergic skin reaction.</p>

PRECAUTIONS

- Acrylamide may polymerize violently when heated to its melting point 183°F (84°C), when exposed to ultraviolet light, or when exposed to strong bases (e.g., potassium or sodium hydroxide), or oxidizing agents (e.g., perchlorates, peroxides, permanganates, chlorates, nitrates, chlorine, bromine, and fluorine).
- If possible, use pre-made acrylamide in solution rather than creating dilutions from pure powder in the lab.
- If aerosols or airborne may be produced (e.g., weighing powder), acrylamide and any suspensions of acrylamide must be handled in a chemical fume hood, a certified, hard ducted biological safety cabinet, or other exhausted enclosure. Aerosols may be produced during any open handling of dry powder, and during open or pressurized manipulations of suspensions.
- Consider using an electrostatic device to minimize dust in the air.

Before starting work:

- Determine if you can use a less hazardous substance in place of acrylamide compounds;
- Order the most dilute solutions available that will meet experimental needs. Order only the quantity that you need;
- Review the manufacturer's Safety Data Sheet and additional chemical information at <http://www.ehs.harvard.edu/safety-data-sheets-sds>;
- Ensure that a written experimental protocol including safety information is available;
- Be familiar with general University emergency procedures in the [EHS Lab Emergency Response Guide](#);
- Identify the location of the nearest eyewash and shower and verify that they are accessible;

During work:

- AVOID INHALATION! Perform all operations in a certified chemical fume hood. Sash lowered as much as possible. Always work at least 6 inches into the fume hood;
- AVOID CONTACT! Use appropriate personal protective equipment (PPE):
 - Wear a lab coat, long pants, shirt and closed-toed shoes.
 - Wear nitrile gloves. When handling suspensions or solutions, choose a glove that is protective against both the solvent and acrylamide. If gloves are splashed or come in contact with acrylamide, change them as soon as possible.
 - Gloves must be thoroughly inspected prior to each use. Do not use damaged gloves;
 - Use proper glove removal technique (without touching glove outer surface) to avoid contact with acrylamide;
 - Always work behind fume hood sash;

- Wear chemically protective goggles or safety glasses.
- Keep all containers tightly closed when not in use and during transport.
- Acrylamide is not compatible with mineral acids (e.g., hydrochloric, sulfuric, nitric acid), oleum, ammonia, isocyanates, and compounds containing hydroxyl-, amino-, and sulfhydryl groups.
- Periodically wipe down the area where acrylamide is used with 1.6% potassium persulfate, followed by 1.6% sodium metabisulfite. This causes any surface residue to polymerize so that it is no longer hazardous. If you cannot do this, at minimum, clean the area with soap and water.

After completing the work:

- Dispose of waste acrylamide and any empty containers that once contained acrylamide compounds following Harvard University [Hazardous Waste Procedures](#).
 - Hazardous Waste Classification: Toxic
- Return container to storage area following Harvard University [Laboratory Chemical Storage Guide](#)
 - Storage Group GS (General Storage)
 - Store in original containers or other appropriate containers.
 - Store primary container in designated, sealable plastic (ideally polypropylene) secondary containers.
 - Store in an area away from the incompatible materials listed in the section above.
- Wash hands and forearms thoroughly with soap and water before leaving the lab.

EMERGENCY PROCEDURES

First Aid

SKIN CONTACT

- Immediately remove all contaminated clothing, including footwear that may trap powder.
 - DO NOT USE COMPRESSED AIR TO REMOVE ACRYLAMIDE POWDER FROM YOUR CLOTHES. This will liberate the acrylamide and cause it to become respirable.
- Flush skin and hair with running water (and soap if available) for a least 15 minutes. Acrylamide will pass through unbroken skin.
- Seek medical attention in event of irritation.

EYE CONTACT

- Using eyewash, flush eyes while hold eyelid open and away from exposed eye. Flush affected area for a minimum of 15 minutes.
- Seek medical attention without delay; if pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

INHALATION

- If acrylamide inhaled remove from contaminated area.
- Call 911 if exposed individual is experiencing respiratory distress.

INGESTION

- **Do not induce vomiting.**
- Call 911 on land line phone for medical assistance (or provide location if calling on a mobile phone).
- Give water to rinse out mouth, do not swallow the water. After the mouth has been adequately rinsed, then provide water slowly and as much as one can comfortably drink.

Spill Response

OUTSIDE FUME HOOD OR VENTILATED ENCLOSURE

- See procedure for spills inside fume hood or ventilated enclosure. **INSIDE FUME HOOD OR VENTILATED ENCLOSURE (< 500 ml or)**
- If trained and confident, you may conduct the clean-up, wearing PPE described above and using appropriate spill supplies.
 - If solid, cover powder with paper towels, and then dampen. Wipe up the powder with the damp paper towel. If solution, apply inert absorbent material (if the solution is made with solvent, apply the solvent absorber). Mix well and then scoop up the material and place in a container.
 - Double bag ALL spill cleanup materials and leave inside the fume hood (in an SAA if available).
 - Wipe area wipe down the area with 1.6% potassium persulfate, followed by 1.6% sodium metabisulfite. If you cannot do this, at minimum, clean the area with soap and water.
 - Label with appropriately completed hazardous waste tag.
- Otherwise close the fume hood sash and await support.
- Contact the University Operations Center at (617) 495-5560 [HMS/HSDM (617) 432-1901] for assistance if necessary.