

DESERT RESEARCH INSTITUTE
Guidelines for Laboratory-Scale Use of
ACRYLAMIDE and Acrylamide Containing Products
(excluding polyacrylamide)

INTRODUCTION

Acrylamide is a suspect human carcinogen and acrylamide and products containing acrylamide (such as bisacrylamide: acrylamide solutions) are considered particularly hazardous substances (PHSs). As such the use of these chemicals requires the completion of a PHS Use Approval Form and the purchase of these materials must be approved by the Principal Investigator before ordering. The amount purchased should be limited to only the quantity needed to complete the project to avoid disposing the excess as hazardous waste. The user is responsible for ensuring a current Material Safety Data Sheet (MSDS) is obtained unless a one is already available within the laboratory.

The use of acrylamide must be conducted in designated areas within the laboratory unless the laboratory itself has been deemed a designated use area. Use areas are required to be posted with appropriate warnings (see Section V.B of the DRI Chemical Hygiene Plan). Additional lab specific details on how and where these materials are used in the lab and lab specific safety measures shall be outlined on the PHS Use Approval Form and may be appended to this document or included in other lab specific safety documents that are used for employee lab specific safety education.

POTENTIAL HAZARDS

Acrylamide is a suspect human carcinogen, severe neurotoxin and reproductive hazard. It causes irritation of the eyes, skin and respiratory tract and is readily absorbed through unbroken skin.

Acute Exposure: Inhalation and/or ingestion may cause drowsiness, tingling sensations, weakness, stumbling, slurred speech and shaking. Severe intoxication may cause permanent nerve damage. Acrylamide causes irritation to the respiratory tract and may affect reproductive system and act as a teratogen. Acrylamide can be readily absorbed through the skin causing irritation, redness and possible systematic poisoning. Eye exposure may cause irritation.

Chronic Exposure: Prolonged or repeated exposure through any route may cause muscular weakness, loss of coordination, skin rashes, excessive sweating, cold hands, peeling of the skin, numbness, abnormal skin or muscle sensations, fatigue, and central and peripheral nervous system damage. Acrylamide may affect the reproductive system and act as a teratogen.

If airborne exposure is suspected at or above the OSHA Permissible Exposure Limit (PEL) of 0.3mg/m³ TWA (skin) or ACGIH Threshold Limit Value Time Weighted Average (TWA) of 0.03 mg/m³ inhalable fraction and vapors (skin), **stop work** and contact EH&S for assistance in conducting a work hazard assessment and hazard mitigation and monitoring protocol.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Wear rubber, neoprene or Nitrile gloves (double gloving is recommended for prolonged contact) and lab coat to avoid contamination of street clothes. Additional protection skin protection, including impervious boots, sleeves, and apron should be used in areas of unusual exposure. ANSI Z87 safety glasses shall be used and where dust or splash exposures are possible, use chemical safety goggles and a full face shield.

ENGINEERING CONTROLS

Use process enclosures, local exhaust ventilation, or other engineering controls such as a chemical hood to reduce dust concentrations. Use only in an area equipped with an emergency shower and eyewash.

DESERT RESEARCH INSTITUTE
Guidelines for Laboratory-Scale Use of
ACRYLAMIDE and Acrylamide Containing Products
(excluding polyacrylamide)

Purchase acrylamide in solution form or a pre-weighed quantity when at all possible. Weighing acrylamide powder should be done in a powders weighing hood.

SPECIAL HANDLING PROCEDURES AND STORAGE REQUIREMENTS

Handling: Powder easily becomes airborne and may result in personal exposure and area contamination. Use care to avoid dispersing dust. Wear appropriate PPE. Avoid cross-contamination of street clothes. Thoroughly wash when leaving restricted areas.

Storage: Keep container tightly closed and store in a cool, dry area away from sources of heat or ignition. Keep away from reactives, oxidizers, peroxides, acids, alkalines, combustibles, and direct sunlight.

SPILL AND ACCIDENT PROCEDURES

Skin contact: Immediately flush skin with copious amounts of soap and water for at least 15 minutes while removing contaminated clothing. Get medical attention immediately.

Eye contact: Immediately flush eyes with copious amounts of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention immediately.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion: Get medical attention immediately. Induce vomiting as directed by medical personnel (Poison Control: 1-800-222-1222). Never give anything by mouth to an unconscious person.

Incidental spill: Do not attempt cleanup if you feel unsure of your ability to do so or if you perceive the risk to be greater than normal laboratory operations. Avoid creating airborne dust by lightly misting dry material. For liquids, absorb with an inert material (vermiculite, sand). Place material in a suitable container labeled with the words "hazardous waste". Do not flush to sanitary sewer and avoid runoff into storm sewer and ditches which lead to waterways.

Large spill: Alert others in immediate area, evacuate the laboratory and close the doors. Call EH&S emergency number 775-742-6330.

DECONTAMINATION

Treat site with a 1.6% potassium persulfate, then with 1.6% sodium metabisulfate. Let stand for 30 minutes, then wash with plenty of water. After cleaning up spilled materials, thoroughly wash the area with soap and water, then rinse. Treat all clean up materials as non-RCRA wastes. Specific instructions may be developed for the lab and should be included here _____

WASTE DISPOSAL PROCEDURES

Acrylamide waste and spill clean up materials should be placed in properly labeled, suitable containers with securely sealed lids. Submit a [Request for Waste Disposal Form](#) to EH&S to arrange for pick up and disposal.

MSDS LOCATION (list lab specific location here) _____

DESERT RESEARCH INSTITUTE
Guidelines for Laboratory-Scale Use of
ACRYLAMIDE and Acrylamide Containing Products
(excluding polyacrylamide)

TRAINING

Lab specific standard operating procedures must be developed and all laboratorians who work with or are potentially exposed to acrylamide in the lab must receive documented training and education about the hazards and how to minimize them.