

Environmental Health & Safety Department  
Chemical Safety Division

**Standard Operating Procedure (SOP) for Kanamycin Sulfate Use in Laboratories**

**Purpose:**

The purpose of this SOP is to outline standard procedures to be followed by laboratory personnel who work with kanamycin sulfate. Principal Investigators are responsible for informing their staff of the hazards associated with working with kanamycin sulfate, and ensuring that research activities involving the use of kanamycin sulfate are in accordance with the procedures outline in this document.

**Uses of Kanamycin Sulfate:**

Kanamycin sulfate is a broad spectrum aminoglycoside-antibiotic derived from *Streptomyces kanamyceticus*. It is used as an additive in culture media for the isolation of group D streptococci and for selection of transformed plant cells containing the neomycin phosphotransferase. It is recommended for use in cell culture applications at 100 mg/mL. Kanamycin sulfate is primarily used in molecular biology procedures for isolating biological agents (cells and bacteria) that are transformed with the kanamycin resistant gene. Bacteria that have been transformed with a plasmid containing the kanamycin resistance gene are plated on kanamycin (50-100 ug/ml) containing agar plates or are grown in media containing kanamycin (50-100 ug/ml). Only the bacteria that have successfully taken up the kanamycin resistance gene become resistant and will grow under these conditions. As a powder, kanamycin is white to off-white and is soluble in water (50 mg/ml).

**NOTE:** *If kanamycin sulfate is used in a different manner as described above, full Chemical Safety Committee (CSC) approval is required. Contact Environmental Health & Safety, Chemical Safety Division, for assistance.*

**Chemical Information:**

Kanamycin sulfate: CAS # 25389-94-0  
Physical Form: Solid – white, odorless.

**Hazards:**



Teratogen. May impair fertility. May cause harm to the unborn child. Repeated contact may cause allergic reactions in very susceptible persons. Target organs include the skin, eyes, reproductive system, and kidney. May be irritating to the eyes, skin, and respiratory tract. May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**Risk Control Measures (Personal Protective Equipment):**

The following personal protective equipment is required when working with all forms of kanamycin sulfate:

**Gloves** – disposable nitrile gloves  
**Face shield or safety goggles or glasses & mask**  
**Laboratory coat**

NIOSH approved respirator – may be required. Contact Environmental Health & Safety for a risk assessment.

**Engineering / Ventilation Controls:**

Use in a chemical fume hood is recommended to reduce exposure to powder. Ensure quick access to a safety shower and eye wash station in areas where kanamycin sulfate is used. If a chemical hood is not available, respiratory protection such as a full face respirator, air-lined hood, self-contained breathing apparatus (SCBA) may be required. Use of a respirator is contingent upon completion of a medical evaluation, respirator fit test and training.

**Storage Requirements:**

Kanamycin sulfate should be stored in a cool, dry, well-ventilated cabinet. Keep containers tightly closed.

**Hazardous Waste Disposal:**

Do not pour kanamycin sulfate solutions down the drains. Collect waste in an appropriate waste container with secondary containment with proper labeling. Contact Environmental Health & Safety to request a chemical waste pick up (<http://research.uthscsa.edu/safety>).

**Spill Response:**

Unless otherwise specified, contact Environmental Health & Safety (210-567-2955) for accidental spills of a hazardous material. **The South Texas Poison Center may be reached at 1-800-222-1222 for medical assessment and treatment recommendations at any time for acute exposures to any potential toxin or toxicant. For any immediate life-threatening exposure 9-1-1 should be called.**

Small spills of kanamycin sulfate may be cleaned by laboratory personnel. Utilize appropriate personal protective equipment while performing chemical spill clean-up, or contact Environmental Health & Safety for assistance.

**Small spills (< 1 liter):**

1. Notify other workers in the area of the spill and control traffic through area. If spill occurs in the public corridor, contact UT Police for assistance in traffic control (7-2800).
2. Remove any contaminated clothing.
3. Utilize nearest emergency safety shower or eyewash station.
4. Put on gloves, shoe covers and cover spill with appropriate material.
5. Carefully pour appropriate absorbent material/neutralizing agent over spill.
6. Recover spill materials with broom, squeegee and dustpan and place in a waste bag.
7. Pick up any broken glass with forceps and dispose of in a sharps container.
8. Wipe area clean.
9. Remove gloves and shoe covers before leaving area and place in waste bag.
10. Secure waste bag and label appropriately. This should be disposed of as hazardous waste. Contact Environmental Health & Safety (<http://research.uthscsa.edu/safety>) to request a pick-up.

**Large spills (> 1 liter):**

1. Evacuate room, close door, to prevent others from entering.
2. Contact Environmental Health & Safety, 567-2955, for assistance. Be prepared to provide the following information: location of spill, time of spill, name of chemical, physical form (powder, liquid, etc.), quantity, injured persons, security of area where spill occurred.

**Training:** Employees working with kanamycin sulfate should be properly trained in the hazards associated with working with acetonitrile, as well as proper work practices, including proper handling, storage, disposal, and emergency response.

**First Aid for Accidental Exposures:**

**Skin Contact:** Immediately flush skin with water for 15 minutes while removing all contaminated clothing and shoes. Get medical attention immediately. Wash clothing and shoes thoroughly before use.

**Eye Contact:** Immediately flush eyes with water for 15 minutes, lifting lower and upper lids occasionally. Get medical attention immediately.

**Ingestion:** If swallowed, get medical attention immediately. Do not induce vomiting. Never give anything by mouth to an unconscious person. If not breathing, give artificial respiration.

**Inhalation:** Move to fresh air. If breathing is labored or with coughing, give 100% oxygen. If not breathing, give artificial respiration. **DO NOT GIVE MOUTH TO MOUTH RESUSCITATION.**

**Post Exposure/Injury.** If a spill results in an exposure (i.e. inhalation, skin contact, eye contact, or ingestion):

- SEEK MEDICAL ATTENTION IMMEDIATELY
- Report incident to your supervisor as soon as possible, and with your supervisor, complete the Employer's First Report of Injury form available at <http://research.uthscsa.edu/safety/workerscomp.shtml>.
- Report all chemical incidents to Environmental Health & Safety at 210-567-2955.

**It is important to fill out all of the appropriate paperwork in order to be eligible to collect workers compensation should any illnesses arise from the hazardous exposure in the future.** Seek medical attention. Provide a copy of MSDS. Contact UTHSCSA Employee Health & Wellness Clinic (210-567-2788) during normal business hours, or University Hospital Emergency Triage (210-358-2488) after normal business hours or on weekends.

**For questions or concerns, please contact:**

**Environmental Health & Safety, 1.343T DTL  
(210)567-2955**

<http://research.uthscsa.edu/safety>