



TEMPLE UNIVERSITY
A Commonwealth University
Environmental Health & Radiation Safety (EHRS)

STANDARD OPERATING PROCEDURE (SOP): URETHANE

LABORATORY/USER INFORMATION

Principal Investigator (PI): _____ Phone # _____

Department: _____

Building #: _____ Office Room#: _____

Creation Date: _____ Revision Date: _____

Location/Area (s) Covered by this SOP.

Building (s)	Lab (s) #
_____	_____
_____	_____
_____	_____
_____	_____

Note: The Occupational Safety and Health Administration (OSHA) require a written SOP for any work involving Urethane. This SOP must be customized for each lab/area using urethane and/or urethane solution. Insert a copy (either hard or electronic) into your chemical hygiene plan.

Note: This SOP must be reviewed on an annual basis or whenever changes are made to use and/or location.

USE & PROCEDURE

Use this section to describe the process or circumstances of use, including the chemical name (IUPAC), common name, CAS #, concentration and quantity. Attach experimental protocol or written lab specific procedures.

GENERAL INFORMATION

- All urethane work must be conducted in a certified operating chemical fume hood.
- Individuals planning a family or pregnant can contact EHRS for exposure determination, consultation, and recommendations.
- All workers must meet the training requirements listed in the training section of this SOP prior to using any urethane.
- Any deviation from this SOP requires approval from the PI.

POTENTIAL HAZARDS

- Urethane occurs as colorless crystals or white granular powder and is very soluble in water. Urethane is almost odorless. The odor threshold has not been established.
- Urethane has been classified as a mutagen and as a Group 2A carcinogen by the International Agency of Research on Cancer (IARC) and is identified as a "Select Carcinogen" by the US Occupational Safety and Health Administration (OSHA.)
- Urethane is readily absorbed through the skin, can target multiple organs, suppress bone marrow, readily cross the placenta and induces fetal formation.
- Urethane is also a moderate irritant and may cause chemical conjunctivitis/
- Consult your Material Safety Data Sheet (MSDS) for additional information.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

The level of skin and eye protection should be selected based on the potential for splashing and other forms of exposure. A site specific risk assessment must be conducted by the PI to determine if any additional PPE is required.

- Minimum potential for splash & exposure:
 - Single pair of chemical resistant gloves (Change gloves frequently and immediately replace with new gloves when gloves become contaminated.)
 - Nitrile
 - Protective clothing shall be worn to prevent any possibility of skin contact with urethane.
 - Lab coats
 - Closed toed shoes

- Long pants
 - Long sleeved clothing
- Safety glasses, goggles or face shields shall be worn during operations in which urethane might contact the eyes (e.g., through vapors or splashes of solution).
 - Safety glasses with side shields or chemical splash goggles-Must meet ANSI/OSHA specifications.
- When using or transferring large quantities or when using in systems under pressure.
 - Chemical splash goggles-Must meet ANSI/OSHA specifications.
 - Double pair of chemical resistant gloves (Immediately replace with new gloves when gloves become contaminated.)
 - Nitrile
 - Chemical resistant apron/smock/lab coat
 - Protective Clothing
 - Impervious sleeves
 - Closed-toed shoes

NOTE: A certified chemical fume hood or ducted biological safety cabinet must be used in any task that has the potential for airborne inhalation exposure.

INSERT ADDITIONAL PPE AS NECESSARY:

ENGINEERING CONTROLS

- All operations involving urethane (powder, granules, and solution) must be conducted in a properly operating and certified chemical fume hood or certified ducted Biological Safety Cabinet.
- Safety engineered syringes must be used for urethane injection.
- Safety Shower and Emergency eyewash should be easily accessible within the immediate work environment in areas where urethane is used.
- Laboratory rooms must be at negative pressure with respect to the corridors and external environment.
- Laboratory/Room doors must be kept closed at all times.

INSERT ADDITIONAL ENGINEERING CONTROL AS NECESSARY:

SPECIAL HANDLING PROCEDURES & STORAGE REQUIREMENTS

- Keep containers of urethane closed at all times.
- Once mixed into an aqueous solution, urethane should then be transferred into a sealed bottle. This will prevent volatilization, spillage, and accidental contamination of the environment.
- Wash hands thoroughly with soap and water after removing your gloves.
- Separate from chemical oxidizers
- Keep away from sources of ignition.
- Store in a cool, dry, well-vented area away from incompatible substances.
- Use the smallest practical quantities for the experiment being performed.
- Transport urethane solutions in secondary containment.
- All areas which use urethane must have a chemical spill kit present.

INSERT ADDITIONAL HANDLING & STORAGE REQUIREMENTS AS NECESSARY:

TRAINING REQUIREMENTS

- All personnel are required to complete the EHRS chemical safety trainings prior to working with Urethane.
- The Principal Investigator (PI) must provide lab specific training to all laboratory workers specific to the hazards (physical and health) involved in working with the substance, sources of exposure, risk assessment, personal protective equipment, engineering controls, waste disposal, work area decontamination and emergency procedures. In addition, the PI must review and provide a copy of the MSDS and this SOP to any lab worker prior to working with any of the materials covered by this SOP.
- The PI must ensure that all lab personnel have attended the required training and/or refresher training.

DESIGNATED AREAS

- Designated area(s) for use and storage of urethane must be established. This may be specific work benches or chemical fume hoods.
- All chemicals must be in secondary containment with proper signage.
- Signage is required for the designated work area and storage locations. Sign wording must state the following. “

**DANGER
DESIGNATED AREA**

for select carcinogens, reproductive toxins and high acute toxicity chemicals

- Access to the designated areas shall be limited to trained and knowledgeable personnel.

INSERT LOCATION OF DESIGNATED AREA(S):

SPILL PROCEDURES

- Spills-General Instructions
 - Notify others of the spill and keep spill area confined.
 - Review MSDS
 - Don appropriate PPE (double nitrile gloves, splash goggles, face shield and lab coat)
 - Extinguish all ignition sources
 - Collect all spilled material and clean up material and place into an appropriate waste container or double lined bag. Label the bag/container with a Hazardous waste label.
 - Call EHRS at 215-707-2520 and report the spill.
- Minor Spills-Liquid
 - Neutralize and/or absorb freestanding liquid with spill kit absorbent, inert material (vermiculite, sand, etc.) or absorbent pads.
 - Place clean up items in waste container or double lined bag.
 - Wait 10 minutes and wash spill area with soap and water
- Minor Spills-Solid
 - Wet paper towels or absorbent pads and gently place on top of the powder to avoid creation of dust.
 - Carefully wipe up the area and place clean up material into an appropriate waste container or double lined bag. Label the bag/container with contents.
 - Wait 10 minutes and wash spill area with soap and water
- Major Spills-Liquid & Solid
 - Evacuate room or immediate area
 - Call EHRS at 215-707-2520
 - Post signs at entrances/exits notifying others of spill.
 - Provide assistance and information to spill responders.

INSERT LOCATION OF URETHANE SPILL KIT:

FIRST AID/ EXPOSURES

- General Instructions
 - Obtain MSDS
 - Contact Campus Police at 1-1234 if immediate medical assistance is necessary.
 - Notify Supervisor
 - Notify EHRS at 215-707-2520
- Seek medical assistance after any accidental exposure.

INSERT LOCATION OF NEAREST STUDENT HEALTH, EMPLOYEE HEALTH AND HOSPITAL

- Inhalation
 - Remove exposed individual to fresh air
 - Seek medical attention
- Skin/Body Contact
 - Remove clothing and rinse body in emergency shower for at least 15 minutes
 - Seek medical attention
- Eye Contact
 - Immediately rinse eyeball and inner surface of eyelid for at least 15 minutes
 - Seek medical attention
- Ingestion
 - Seek immediate medical attention

DECONTAMINATION PROCEDURES

- All work areas, lab benches, equipment (glove boxes, hoods) and glassware where urethane is prepared and/or administered should be cleaned immediately following each task completion utilizing a detergent/water solution.

INSERT ADDITIONAL DECOMTAMINATION PROCEDURES

WASTE DISPOSAL

- Needles used for urethane injection will be disposed of in approved sharp containers and should never be bent, sheared, or recapped.
- All urethane solutions and powders must be disposed of through EHRS. The EHRS [Waste Management](#) section can be reviewed for information on how to properly identify and dispose of Hazardous Waste.
- Carcasses anesthetized or otherwise suspected to be contaminated with urethane must be disposed of in accordance to Institutional Animal Use and Care Committee requirements.

INSERT ADDITONAL WASTE DISPOSAL

PRINCIPAL INVESTIGATOR CERTIFCATION

I certify that I have read and understand the requirements of this Standard Operating Procedure (SOP) and that I agree to fully adhere to its requirements.

Principal Investigator (PI): _____ Title: _____

Signature: _____ Date: _____