

Standard Operating Procedure

Mercaptoethanol

Print a copy and insert into your
Laboratory Safety Manual and Chemical Hygiene Plan.

Department:	Chemistry
Date SOP was written:	3/10/2018
Date SOP was approved by PI/lab supervisor:	3/10/2018
Principal Investigator:	Sarah Keller
Location(s) covered by this SOP:	BAG 005, BAG 023

Type of SOP: Process Hazardous Chemical Hazardous Class

Purpose

Reducing Agent: B-Mercaptoethanol (BME) is suitable for reducing protein disulfide bonds prior to polyacrylamide gel electrophoresis and is usually included in a sample buffer for SDS-PAGE at a concentration of 5%. Cleaving intramolecular (between subunits) disulfide bonds allows the subunits of a protein to separate independently on SDS-PAGE. Cleaving intramolecular (within subunit) disulfide bonds allows the subunits to become completely denatured so that each peptide migrates according to its chain length with no influence due to secondary structure.

Neuronal Cultures: BME is a key ingredient of culture medium for survival of neurons in both serum and serum-free conditions. BME increases survival of both embryonic cortical and hippocampal neurons.

Physical & Chemical Properties/Definition of Chemical Group

Class: Toxic, Flammable

CAS #: 60-24-2

Formula: C₂H₆SO

Form: Liquid

Color: Colorless Yellow

Potential Hazards/Toxicity

OSHA Hazards

Combustible Liquid, Toxic by inhalation., Toxic by ingestion, Highly toxic b 1 skin absorption, Skin sensitiser,

Corrosive, Mutagen

Other hazards which do not result in classification

Stench., Rapidly absorbed through skin.

GHS Classification

Flammable liquids (Category 4)

Acute toxicity, Oral (Category 3)

Acute toxicity, Inhalation (Category 3)
Acute toxicity, Dermal (Category 2)
Skin irritation (Category 2)
Serious eye damage (Category 1)
Skin sensitization (Category 1)
Specific target organ toxicity - repeated exposure, Oral (Category 2),
Liver Heart Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)
Combustible liquid
Conditions of flammability
Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat, sparks/open flame/hot surface.

Toxic if swallowed or if inhaled
Fatal in contact with skin. Causes skin irritation.
May cause an allergic skin reaction. Causes serious eye damage.
May cause damage to organs (Liver, Heart) through prolonged or repeated exposure if swallowed.
Very toxic to aquatic life with long lasting effects.

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 EH&S. This is a regulatory requirement.

Hand Protection

Nitrile gloves are recommended.

NOTE: Refer to glove selection chart from the links below:

http://www.ansellpro.com/download/Ansell_8thEditionChemicalResistanceGuide.pdf 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 chemical, immediately remove gloves, wash hands and arms with soap and water.

Engineering Controls

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

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Spill and Accident Procedure

Chemical Spill Dial 911

Spill – Assess the extent of danger. Help contaminated or injured persons. Evacuate the spill area. Avoid breathing vapors. If possible, confine the spill to a small area using a spill kit or absorbent material. Keep others from entering contaminated area (e.g., use caution tape, barriers, etc.).

Small (<1 L) – If you have training, you may assist in the clean-up effort. Use appropriate personal protective equipment and clean-up material for chemical spilled. Double bag spill waste in clear plastic bags, label and take to the next chemical waste pick-up.

Large (>1 L) – Dial 911 and EH&S at for assistance.

Chemical Spill on Body or Clothes – Remove clothing and rinse body thoroughly in emergency shower for at least 15 minutes. Seek medical attention. *Notify supervisor and EH&S at immediately.*

Chemical Splash Into Eyes – Immediately rinse eyeball and inner surface of eyelid with water from the emergency eyewash station for 15 minutes by forcibly holding the eye open. Seek medical attention. *Notify supervisor and EH&S immediately.*

Medical Emergency Dial 911

Life Threatening Emergency, After Hours, Weekends And Holidays – Dial 911

Needle stick/puncture exposure (as applicable to chemical handling procedure) – Wash the affected area with antiseptic soap and warm water for 15 minutes. For mucous membrane exposure, flush the affected area for 15 minutes using an eyewash station.

Decontamination/Waste Disposal Procedure

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.

General hazardous waste disposal guidelines:

Label Waste

- Affix an on-line hazardous waste tag on all waste containers as soon as the first drop of waste is added to the container

Store Waste

- Store hazardous waste in closed containers, in secondary containment and in a designated location
- Double-bag dry waste using transparent bags
- Waste must be under the control of the person generating & disposing of it

Dispose of Waste

- Dispose of regularly generated chemical waste within 90 days
- Call EH&S at x61887 for questions
- Empty Containers
 - Dispose as hazardous waste if it once held extremely hazardous waste (irrespective of the container size)

Prepare for transport to pick-up location

- Check on-line waste tag
- Use secondary containment

Safety Data Sheet (SDS) Location

Online SDS can be accessed at <http://msds.ehs.ucla.edu>.

NOTE

Any deviation from this SOP requires approval from PI.

Principal Investigator SOP Approval

Print name Sarah Keller

Signature _____

Approval Date: