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----------ISO 9001: 2015----------

MATERIAL SAFETY DATA SHEET

Section 1 - Chemical Product and Company Identification
2-Mercapto ethanol, for molecular biology, 99%
Code M 1628

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
60-24-2	2-Mercaptoethanol	> 98	200-464-6

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Appearance: clear, colorless liquid. Flash Point: 73.9 deg C.
Warning! May be fatal if absorbed through the skin. Causes severe eye irritation. Harmful if swallowed. Combustible liquid and vapor. May cause skin and respiratory tract irritation. Moisture sensitive.
Target Organs: Central nervous system, respiratory system, eyes.

Potential Health Effects
Eye: May cause severe eye irritation. May result in corneal injury.
Skin: May be fatal if absorbed through the skin. May cause irritation with burning pain, itching and redness.
Ingestion: Harmful if swallowed. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause muscle paralysis, respiratory failure, and possible death.
Inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause respiratory tract irritation. May cause dyspnea (difficult or labored breathing). Exposure to high concentrations of mercaptans can produce unconsciousness with cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), cold extremities and rapid pulse. Mercaptans may cause nausea and headache.
Chronic: Prolonged or repeated skin contact may cause defatting and dermatitis. Repeated or prolonged exposure may cause CNS stimulation.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid imme diately.
Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Combustion generates toxic fumes. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Combustible liquid. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.
Extinguishing Media: Do NOT get water inside containers. For small fires, use dry chemical, carbon dioxide, or water spray. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray. Cool containers with flooding quantities of water until well after fire is out.
Flash Point: 73.9 deg C (165.02 deg F)
Autoignition Temperature: 295 deg C (563.00 deg F)
Explosion Limits, Lower: 1.1
Upper: 2.7
NFPA Rating: (estimated) Health: 3; Flammability: 2; Instability: 1

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Scoop up with a nonsparking tool, then place into a suitable container for disposal. Remove all sources of ignition. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Do not ingest or inhale. Do not allow contact with water. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.
Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
2-Mercaptoethanol	none listed	none listed	none listed

OSHA Vacated PELs: 2-Mercaptoethanol: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: clear, colorless
Odor: strong odor - rotten egg-like
pH: 5.2 (0.1M sol)
Vapor Pressure: 1 mm Hg @ 20 deg C
Vapor Density: 2.69 (air=1)
Evaporation Rate:Not available.
Viscosity: 343 cP
Boiling Point: 157.2 deg C
Freezing/Melting Point:-100 deg C
Decomposition Temperature:157.2 deg C
Solubility: Soluble in water.
Specific Gravity/Density:1.14 (water=1)
Molecular Formula:C2H6OS
Molecular Weight:78.13

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: High temperatures, ignition sources, excess heat.
Incompatibilities with Other Materials: Strong oxidizers, calcium hypochlorite, metals, strong acids, caustics, aliphatic amines, isocyanates.
Hazardous Decomposition Products: Carbon monoxide, oxides of sulfur, irritating and toxic fumes and gases, carbon dioxide.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 60-24-2: KL5600000
LD50/LC50:
CAS# 60-24-2:
Dermal, guinea pig: LD50 = 300 uL/kg;
Draize test, rabbit, eye: 2 mg Severe;

Inhalation, mouse: LC50 = 13200 mg/m3;
Oral, mouse: LD50 = 190 mg/kg;
Oral, rat: LD50 = 244 mg/kg;
Skin, rabbit: LD50 = 150 uL/kg;
.

Carcinogenicity:
CAS# 60-24-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.
Teratogenicity: No information available.
Reproductive Effects: No information available.
Mutagenicity: Cytogenetic Analysis: human leukocyte 100uL/L DNA Damage: microorganisms 10mmol/L DNA Inhibition: rat liver 1mmol/L Unscheduled DNA Synthesis: mouse cell types 30mmol/L
Neurotoxicity: No information available.
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.
Environmental: No information reported.
Physical: No information available.
Other: None.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	THIOGLYCOL	THIOGLYCOL
Hazard Class:	6.1	6.1
UN Number:	UN2966	UN2966
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 60-24-2 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 60-24-2: immediate, fire.
Section 313 No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 60-24-2 can be found on the following state right to know lists: New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T

Risk Phrases:

R 22 Harmful if swallowed.
R 24 Toxic in contact with skin.
R 36 Irritating to eyes.

Safety Phrases:

S 24/25 Avoid contact with skin and eyes.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face pr
otection.
S 45 In case of accident or if you feel unwell, seek medical advice
immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 60-24-2: 3

Canada - DSL/NDSL

CAS# 60-24-2 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B3, D1A, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 60-24-2 is listed on the Canadian Ingredient Disclosure List.

Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.