*Phyto*Technology Laboratories®

SAFETY DATA SHEET

1. CHEMICAL IDENTIFICATION AND COMPANY INFORMATION

PRODUCT NAME: 2-Mercaptoethanol

PRODUCT NUMBER: M649

COMPANY INFO: *Phyto*Technology Laboratories®
PO Box 12205, Shawnee, KS 66282-2205
Phone: 1-888-749-8682 or 1-913-341-5343; Fax: 1-888-449-8682 or 1-913-341-5442
www.phytotechlab.com

EMERGENCY PHONE NUMBER: 1-800-535-5053 - US Only
1-352-323-3500 - International

RECOMMENDED USE: For Research Use Only

RESTRICTIONS ON USE: Products sold by *Phyto*Technology Laboratories® are intended for research and laboratory use only. Products are not to be used as human or animal therapeutics, cosmetics, agricultural or pesticidal products, food additives, or as household chemicals.

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification:

H227 – Flammable liquids (Category 4)
H301 – Acute toxicity, Oral (Category 3)
H310 – Acute toxicity, Dermal (Category 2)
H315 – Skin irritation (Category 2)
H318 – Serious eye damage (Category 1)
H331 – Acute toxicity, Inhalation (Category 3)
H373 – Specific target organ toxicity - repeated exposure, Oral – Liver and Heart (Category 2)
H410 – Chronic aquatic toxicity (Category 1)

GHS Label elements, including hazard and precautionary statements:

Pictogram: 

Signal Word: Danger

Hazard Statements:

H227 – Combustible liquid.
H301 + H331 – Toxic if swallowed or if inhaled
H310 – Fatal in contact with skin.
H318 – Causes serious eye damage.
H373 – May cause damage to organs (Liver, Heart) through prolonged or repeated exposure if swallowed.
H410 – Very toxic to aquatic life with long lasting effects.

Precautionary Statements:

P210 – Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260 – Do not breathe fume/gas/ mist/ vapors/spray.
P273 – Avoid release to the environment.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.
P302 + P350 + P310 – IF ON SKIN: Gently wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P314 – Get medical advice/ attention if you feel unwell

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms:	Thioethylene glycol; 2-Hydroxyethylmercaptan; BME; β-Mercaptoethanol
CAS No.:	60-24-2
Formula:	C_2H_6OS
Molecular Weight:	78.13 g/mol
EC No.:	200-464-6

Ingredient	CAS Number	Percent	Hazardous
2-Mercapthoethanol	60-24-2	~100%	Workplace Environmental Exposure Levels – TWA: 0.2 ppm

4. FIRST AID MEASURES

General Advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Route of Entry	Symptoms	First Aid Procedures
Ingestion	May cause irritation if swallowed	If swallowed, wash out mouth with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. **Get medical attention.**
Inhalation	May cause irritation to respiratory tract	Safely remove victim to fresh air. If not breathing, institute cardiopulmonary resuscitation (CPR). If breathing is difficult, ensure clear airway and give oxygen. **Get medical attention.**
Eye Contact	Direct contact may cause irritation. May cause redness, tearing, or blurred vision.	Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. **Get medical attention if irritation persists.**
Skin Contact	Irritating. May cause reddening, itching or inflammation.	Wash area thoroughly with soap and water. Remove and wash contaminated clothing. **Get medical attention if irritation persists.**

Most Important Symptoms or Effects, Both Acute and Delayed:

See section 2 and/or section 11

Recommendation for Immediate Medical Care and Special Treatment Needed:

No data available

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:	Water spray, carbon dioxide, dry chemical powder, or appropriate foam. Use extinguishing media suitable for surrounding fire.
Special Protective Equipment and Precaution for Firefighters:	In the event of a fire, wear full protective clothing and NIOSH approved self-contained breathing apparatus. Evacuate the area and fight fire from a safe distance.
Hazardous Combustion Products:	May emit toxic fumes under fire conditions.
Toxic Gases Produced:	Carbon oxides, sulphur oxides

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures:

Use personal protection recommended in Section 8. Avoid breathing vapors, mist or gas. Remove all sources of ignition. Ensure adequate ventilation, especially in confined areas. Remove from source of ignition Evacuate personnel to safe areas. Beware of vapor accumulating to form explosive concentrations.

Environmental Precautions:	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
Method of Containment and Cleanup:	Wear suitable protective clothing. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulation. Contact local regulation for disposal. Do not let products enter drains.

7. HANDLING AND STORAGE

Precaution for Safe Handling:	Avoid contact with skin and eyes. Avoid breathing vapors or mist. Avoid incompatible substances. Keep away from sources of ignition. Wash thoroughly after use.
Conditions for Safe Storage:	Keep in a tightly closed container and store in a cool, dry, and well-ventilated area.
Incompatibilities:	Strong oxidizing agents and metals
Recommended Storage Temperature:	2 – 6 ^{o}C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OSHA's Permissible Exposure Limits (PELs):	No data available
Threshold Limit Values (TLVs):	No data available
USA Workplace Environmental Exposure Levels:	0.2 ppm
Engineering Controls:	Handle in accordance to general industrial hygiene and safety practice.

Personal Protective Equipment (PPE):

Eye/Face Protection:	Chemical safety glasses or goggles. Have eye-washing facilities readily available where eye contact can occur.
Skin Protection:	Protective gloves
Body Protection:	Lab coat
Respiratory Protection:	Appropriate respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colorless liquid
pH:	No data available
Solubility:	Miscible with water
Melting Point:	< -49.99 °C (< -57.98 °F)
Vapor Density:	2.70 - (Air = 1.0)
Vapor Pressure:	0.76 hPa (0.57 mmHg) at 20 °C (68 °F) 4.67 hPa (3.50 mmHg) at 40 °C (104 °F)
Odor:	Pungent/Stench odor
Odor Threshold:	No data available
Viscosity:	No data available
Relative Density:	1.114 g/cm3 at 25 °C (77 °F)□
Evaporation Rate:	No data available
Initial Boiling Point and Boiling Range:	157 °C (315 °F)
Flammability (solid, gas):	No data available
Partition coefficient: n-octanol/water):	log Pow: -0.326log Pow: -0.056 at 25 °C (77 °F)
Auto-ignition Temperature:	No data available

Decomposition Temperature:	No data available	
Flash Point (Closed Cup):	68 °C (154 °F)	
Flammable Limits:	Upper (%) – 18% (V)	Lower (%) – 2.3% (V)

10. STABILITY AND REACTIVITY

Reactivity:	No data available
Chemical Stability:	Stable under normal conditions of use
Possibility of Hazard Reactions:	Will not occur
Conditions to Avoid:	Heat, flames and sparks
Incompatibles Materials:	Strong oxidizing agents and metals
Hazardous Decomposition Products:	Carbon oxides, sulphur oxides

11. TOXICOLOGICAL INFORMATION

Toxicity:	LD_{50} (Oral-Rat)(mg/Kg):	162
	LC_{50} (Inhalation-Rat):	2 mg/L – 4 hr
	LD_{50} (Dermal-Rabbit)(mg/Kg):	112

Carcinogenicity:	NTP:	No
	IARC:	No
	Z List:	No
	OSHA Reg:	No

Germ cell mutagenicity:	Experiments showed mutagenic effects in cultured bacterial cells.	
Reproductive Toxicity:	No data available	
Symptoms Associated with Overexposure:	Burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting, weakness, unconsciousness. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema	
Specific Target Organ Toxicity:	Single Exposure:	No data available
	Repeated Exposure:	Ingestion - May cause damage to organs through prolonged or repeated exposure. - Liver, Heart
Target Organs:	Liver and heart	
Medical Conditions Aggravated By Exposure:	None identified	
Routes of Entry:	Inhalation, Ingestion	
NIOSH/RTECS NO:	KL5600000	

The toxicological properties of this product have not been thoroughly investigated

12. ECOLOGICAL INFORMATION

Ecotoxicity:	Toxicity to fish – LC50 – golden orfe – 100 mg/L – 96 hr
Persistence and Degradability:	Biodegradability: not readily biodegradable Biochemical Oxygen Demand (BOD): 105 mg/g Chemical Oxygen Demand (COD): 1.894 mg/g
Bioaccumulative Potential:	No data available
Mobility in Soil:	No data available

Other Adverse Effects: Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATION

Disposal Procedure: Dispose in accordance with all applicable federal, state, and local environmental regulations.

EPA Hazardous Waste Number: No data available

14. TRANSPORT INFORMATION

Domestic (D.O.T.):	Proper Shipping Name:	Thioglycol		
	Hazard Class:	6.1	Packing group: II	
	UN:	2966		
	Poison inhalation hazard:	No		
International:				
IMDG:	Proper Shipping Name:	Thioglycol		
	Hazard Class:	6.1	Packing group: II	EMS-No.: F-A. S-A
	UN:	2966		
	Marine pollutant:	Yes		
IATA:	Proper Shipping Name:	Thioglycol		
	Hazard Class:	6.1	Packing group: II	
	UN:	2966		

15. REGULATORY INFORMATION

TSCA: Yes

SARA TITLE III:

Section 302 (EHS) Ingredients: No

Section 313 Ingredients: No

Section 304 (EHS/CERCLA) Ingredients: No

Section 311/312 Hazard: Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right to Know Components: CAS No.: 60-24-2 2-Mercaptoethanol

Pennsylvania Right to Know Components: CAS No.: 60-24-2 2-Mercaptoethanol

New Jersey Right to Know Components: CAS No.: 60-24-2 2-Mercaptoethanol

California Prop. 65 Components: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

HMIS Rating:

Health Hazard	Chronic Health Hazard	Flammability	Physical Hazard
4	*	2	0

NFPA Rating:

Health Hazard	Fire Hazard	Reactivity Hazard	Special Hazard
3	2	0	

*Chronic Hazard: Chronic (long-term) health effects may result from repeated overexposure.

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