

## MATERIAL SAFETY DATA SHEET

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Version 1.14

## Section 1 - Product and Company Information

Product Name 2-MERCAPTOETHANOL ELECTROPHORESIS REAGENT  
Product Number M7154  
Brand SIGMA  
Company Sigma-Aldrich  
Street Address 3050 Spruce Street  
City, State, Zip, Country SAINT LOUIS MO 63103 US  
Technical Phone: 314 771 5765  
Emergency Phone: 414 273 3850 Ext. 5996  
Fax: 800 325 5052

## Section 2 - Composition/Information on Ingredient

Substance Name 2-MERCAPTOETHANOL CAS # 60-24-2 SARA 313 No  
Formula C<sub>2</sub>H<sub>6</sub>O<sub>S</sub>  
Synonyms Emery 5791 \* 1-Ethanol-2-thiol \* Ethylene glycol, monothio- \* 2-Hydroxy-1-ethanethiol \* 2-Hydroxyethyl mercaptan \* 2-ME \* Mercaptoethanol \* beta-Mercaptoethanol \* 2-Mercaptoethanol \* Monothioethyleneglycol \* 2-Thioethanol \* Thiomonoglycol \* USAF EK-4196  
RTECS Number: KL5600000

## Section 3 - Hazards Identification

## EMERGENCY OVERVIEW

Highly Toxic (USA) Toxic (EU). Dangerous for the environment. Harmful by inhalation and if swallowed. Toxic in contact with skin. Causes burns. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Readily absorbed through skin. Stench. Combustible.

## HMIS RATING

HEALTH: 3  
FLAMMABILITY: 2  
REACTIVITY: 1

## NFPA RATING

HEALTH: 3  
FLAMMABILITY: 2  
REACTIVITY: 1

For additional information on toxicity, please refer to Section 11.

## Section 4 - First Aid Measures

## ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is

conscious. Call a physician immediately.

#### INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

#### DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

#### EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

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### Section 5 - Fire Fighting Measures

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#### FLASH POINT

170.6 °F    77 °C    Method: closed cup

#### EXPLOSION LIMITS

Lower: 2.3 %    Upper: 18 %

#### AUTOIGNITION TEMP

295 °C

#### FLAMMABILITY

N/A

#### EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

#### FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.  
Specific Hazard(s): Combustible liquid. Emits toxic fumes under fire conditions.

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### Section 6 - Accidental Release Measures

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#### PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

#### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

#### METHODS FOR CLEANING UP

Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

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### Section 7 - Handling and Storage

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#### HANDLING

User Exposure: Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

#### STORAGE

Suitable: Keep container closed. Keep away from heat and open

flame.

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## Section 8 - Exposure Controls / PPE

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### ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

### PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Government approved respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

Other: Faceshield (8-inch minimum).

### GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling. Discard contaminated shoes.

### EXPOSURE LIMITS

Country	Source	Type	Value
USA			10 ppm

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## Section 9 - Physical/Chemical Properties

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Appearance	Physical State: Liquid	
	Color: Colorless	
	Odor: Stench.	
Property	Value	At Temperature or Pressure
Molecular Weight	78.13 AMU	
pH	4.0 - 6.0	20 °C
BP/BP Range	157 °C	
MP/MP Range	<. - 50.0 °C	
Freezing Point	N/A	
Vapor Pressure	0.76 mbar	20 °C
Vapor Density	2.69 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	1.115 g/cm <sup>3</sup>	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	Log Kow: - 0.326	
Decomposition Temp.	N/A	
Flash Point	170.6 °F 77 °C	Method: closed cup
Explosion Limits	Lower: 2.3 % Upper: 18 %	
Flammability	N/A	
Autoignition Temp	295 °C	760 mmHg
Refractive Index	1.501	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water: 0.5 M in H <sub>2</sub> O, 20°C complete, colorless	

N/A = not available

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## Section 10 - Stability and Reactivity

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### STABILITY

Stable: Stable.

Conditions to Avoid: Exposure to moisture may affect product quality. Heat.

Materials to Avoid: Avoid contact with metals., Oxidizing agents

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Sulfur oxides.

### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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## Section 11 - Toxicological Information

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### ROUTE OF EXPOSURE

Skin Contact: Causes burns.

Skin Absorption: Readily absorbed through skin. Toxic if absorbed through skin.

Eye Contact: Causes burns.

Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Harmful if inhaled.

Ingestion: Harmful if swallowed.

### SIGNS AND SYMPTOMS OF EXPOSURE

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema.

Unconsciousness. Nausea. Weakness. Exposure may cause: Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

### TOXICITY DATA

Skin

Rabbit

168.0 - 200.0 mg/kg

LD50

4 H

Inhalation

Rat

625 ppm

LC50

Oral

Rat

244 mg/kg

LD50

Remarks: Behavioral:Excitement. Behavioral:Muscle contraction or spasticity. Lungs, Thorax, or Respiration:Respiratory depression.

Oral

Mouse

190 mg/kg

LD50

Remarks: Behavioral:Excitement. Behavioral:Muscle contraction or spasticity. Lungs, Thorax, or Respiration:Respiratory depression.

Inhalation

Mouse  
13,200 mg/m<sup>3</sup>  
LC50

Remarks: Lungs, Thorax, or Respiration:Respiratory depression.

Intraperitoneal  
Mouse  
200 MG/KG  
LD50

Skin  
Rabbit  
150 UL/KG  
LD50

Skin  
Guinea pig  
300 UL/KG  
LD50

#### IRRITATION DATA

Eyes  
Rabbit  
Remarks: Severe irritation effect  
Skin  
Remarks: Moderate irritation effect  
Skin  
Rabbit  
Remarks: Corrosive.

Skin  
Rabbit  
10 mg  
24H  
Remarks: Open irritation test

Eyes  
Rabbit  
2 mg  
Remarks: Severe irritation effect

#### CHRONIC EXPOSURE - MUTAGEN

Species: Mouse  
Mutation test: Lymphoma Mutation Assay  
Result: Negative.  
Mutation test: Histidine reversion (Ames)  
Mutation test: Sister chromatid exchange  
Result: Negative.  
Species: Mouse  
Mutation test: Micronucleus test  
Result: Negative.

Species: Rat  
Dose: 1 MMOL/L  
Cell Type: liver  
Mutation test: DNA inhibition

Species: Mouse  
Dose: 100 MG/L  
Cell Type: Other cell types  
Mutation test: Micronucleus test

Species: Mouse  
Dose: 30 MMOL/L  
Cell Type: Other cell types  
Mutation test: Unscheduled DNA synthesis

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## Section 12 - Ecological Information

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### ACUTE ECOTOXICITY TESTS

Test Type: LC50 Fish  
Species: Leuciscus idus  
Time: 96 h  
Value: 46.0 - 100.0 mg/l

Test Type: EC50 Daphnia  
Species: Daphnia  
Time: 48 h  
Value: 1.52 mg/l

Test Type: EC50 Algae  
Species: Scenedesmus subspicatus  
Time: 72 h  
Value: 12 mg/l

Test Type: LC50 Bacteria  
Time: 17 h  
Value: 125 mg/l

### ELIMINATION

Elimination: 6 %  
Classification: Not significantly biodegradable.

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## Section 13 - Disposal Considerations

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### APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

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## Section 14 - Transport Information

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### DOT

Proper Shipping Name: Thioglycol  
UN#: 2966  
Class: 6.1  
Packing Group: Packing Group II  
Hazard Label: Toxic substances.  
PIH: Not PIH

### IATA

Proper Shipping Name: Thioglycol  
IATA UN Number: 2966  
Hazard Class: 6.1  
Packing Group: II

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## Section 15 - Regulatory Information

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### EU ADDITIONAL CLASSIFICATION

Symbol of Danger: T-N  
Indication of Danger: Toxic. Dangerous for the environment.

R: 20/22-24-34-51/53

Risk Statements: Harmful by inhalation and if swallowed. Toxic in contact with skin. Causes burns. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S: 26-36/37/39-45-61

Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/safety data sheets.

#### US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Highly Toxic (USA) Toxic (EU). Dangerous for the environment.

Risk Statements: Harmful by inhalation and if swallowed. Toxic in contact with skin. Causes burns. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/safety data sheets.

US Statements: Readily absorbed through skin. Stench. Combustible.

#### UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

TSCA INVENTORY ITEM: Yes

#### CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

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#### Section 16 - Other Information

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#### DISCLAIMER

For R&D use only. Not for drug, household or other uses.

#### WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.