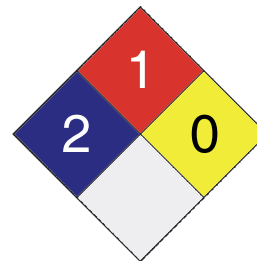


1. Product and Company Identification

Product Name	Colormetry Reagent Cartridge CMU-H2
CAS #	Mixture
Product use	Miscellaneous
Manufacturer	Miura Co.,Ltd 7 Horie-cho Matsuyama, Ehime, 799-2696 JP Phone: (089) 979 7123
Supplier	Miura North America Inc. 6315 Shawson Drive, Unit 17 Mississauga, ON L5T 1J2 Canada Phone: 905-564-9199 Toll Free: 800-666-2182 Emergency Phone: 613-996-6666 (CANUTEC)

LEGEND HMIS/NFPA	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

Health	* 2
Flammability	1
Physical Hazard	0
Personal Protection	B



2. Hazards Identification

Emergency overview	DANGER TOXIC. EYE AND SKIN IRRITANT. Contains a potential teratogen.
Potential short term health effects	
Routes of exposure	Eye, Skin contact, Inhalation, Ingestion.
Eyes	Causes irritation.
Skin	May cause irritation.
Inhalation	Excessive intentional inhalation may cause respiratory tract irritation and central nervous system effects (headache, dizziness).
Ingestion	May cause stomach distress, nausea or vomiting.
Target organs	Eyes. Respiratory system. Skin.
Chronic effects	Prolonged or repeated exposure can cause drying, defatting and dermatitis.
Signs and symptoms	Although animal toxicity values do not meet criteria, ethylene glycol is toxic to humans. There are numerous human case reports of toxicity and death published in the literature. Symptoms may include redness, edema, drying, defatting and cracking of the skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

3. Composition / Information on Ingredients

Ingredient(s)	CAS #	Percent
Ethylene glycol	107-21-1	60 - 100
Triethanolamine	102-71-6	20-29
EDTA, magnesium disodium	14402-88-1	1 - 5

4. First Aid Measures

First aid procedures

Eye contact	Flush with cool water. Remove contact lenses, if applicable, and continue flushing. Obtain medical attention if irritation persists.
Skin contact	Flush with cool water. Wash with soap and water. Obtain medical attention if irritation persists.
Inhalation	If symptoms develop move victim to fresh air. If symptoms persist, obtain medical attention.
Ingestion	Do not induce vomiting. Rinse mouth with water, then drink one or two glasses of water. Obtain medical attention. Never give anything by mouth if victim is unconscious, or is convulsing.

Notes to physician

Symptoms may be delayed.

General advice

If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Keep out of reach of children.

5. Fire Fighting Measures

Flammable properties

Not flammable by WHMIS/OSHA criteria.

Extinguishing media

Suitable extinguishing media Carbon dioxide. Alcohol foam. Dry chemical.

Unsuitable extinguishing media Not available

Protection of firefighters

Specific hazards arising from the chemical Not available

Protective equipment for firefighters Firefighters should wear full protective clothing including self contained breathing apparatus.

Hazardous combustion products

May include and are not limited to: Oxides of carbon. Oxides of nitrogen.

Explosion data

Sensitivity to mechanical impact Not available

Sensitivity to static discharge Not available

6. Accidental Release Measures

Personal precautions

Keep unnecessary personnel away. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak.

Methods for containment

Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas.

Methods for cleaning up

Before attempting clean up, refer to hazard data given above. Small spills may be absorbed with non-reactive absorbent and placed in suitable, covered, labelled containers. Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice. Never return spills in original containers for re-use.

7. Handling and Storage

Handling

Use good industrial hygiene practices in handling this material.

Storage

Keep out of reach of children. Store in a closed container away from incompatible materials.

8. Exposure Controls / Personal Protection

Exposure limits

Ingredient(s)	Exposure Limits
EDTA, magnesium disodium	ACGIH-TLV Not established OSHA-PEL Not established
Ethylene glycol	ACGIH-TLV Ceiling: 100 mg/m ³ OSHA-PEL Not established
Triethanolamine	ACGIH-TLV TWA: 5 mg/m ³ OSHA-PEL Not established

Engineering controls

General ventilation normally adequate.

Personal protective equipment

Eye / face protection

Wear safety glasses with side shields.

Hand protection

Rubber gloves. Confirm with a reputable supplier first.

Skin and body protection

As required by employer code.

Respiratory protection

Where exposure guideline levels may be exceeded, use an approved NIOSH respirator.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice. When using do not eat or drink. Wash hands before breaks and immediately after handling the product.

9. Physical & Chemical Properties

Appearance	liquid.
Color	black
Form	Liquid within a cartridge
Odor	Slight amine
Odor threshold	Not available
Physical state	Liquid
pH	10
Melting point	Not available
Freezing point	Not available
Boiling point	Not available
Flash point	131 °C (267.80 °F)
Evaporation rate	Not available
Flammability limits in air, lower, % by volume	Not available
Flammability limits in air, upper, % by volume	Not available
Vapor pressure	Not available
Vapor density	Not available
Specific gravity	1.1
Octanol/water coefficient	Not available
Solubility (H ₂ O)	Miscible
Auto-ignition temperature	Potential at high-temperature
VOC (Weight %)	Not available
Viscosity	Not available
Percent volatile	Not available

10. Chemical Stability & Reactivity Information

Chemical stability	Stable under recommended storage conditions.
Conditions to avoid	Do not mix with other chemicals.
Incompatible materials	Caustics. Acids. Oxidizers.
Hazardous decomposition products	May include and are not limited to: Oxides of carbon. Oxides of nitrogen.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Acute effects Although animal toxicity values do not meet criteria, ethylene glycol is toxic to humans. There are numerous human case reports of toxicity and death published in the literature.

Component analysis - LC50

Ingredient(s)	LC50
EDTA, magnesium disodium	Not available
Ethylene glycol	2725 mg/l/4h rat
Triethanolamine	Not available

Component analysis - Oral LD50

Ingredient(s)	LD50
EDTA, magnesium disodium	Not available
Ethylene glycol	7500 mg/kg mouse; 6.6 g/kg guinea pig; 5 g/kg rabbit; 4700 mg/kg rat
Triethanolamine	4190 mg/kg rat; 5300 mg/kg guinea pig; 5200 mg/kg mouse

Effects of acute exposure

Eye	Causes irritation.
Skin	May cause irritation.
Inhalation	Excessive intentional inhalation may cause respiratory tract irritation and central nervous system effects (headache, dizziness).
Ingestion	May cause stomach distress, nausea or vomiting.

Sensitization Non-hazardous by WHMIS/OSHA criteria.

Chronic effects Non-hazardous by WHMIS/OSHA criteria.

Carcinogenicity Non-hazardous by WHMIS/OSHA criteria.

ACGIH - Threshold Limit Values - Carcinogens

Ethylene glycol 107-21-1 A4 - Not Classifiable as a Human Carcinogen

IARC - Group 3 (Not Classifiable)

Triethanolamine 102-71-6 Monograph 77 [2000]

Mutagenicity Non-hazardous by WHMIS/OSHA criteria.

Reproductive effects Non-hazardous by WHMIS/OSHA criteria.

Teratogenicity In rats and mice exposed to ethylene glycol, embryotoxic (late resorptions), fetotoxic (reduced fetal body weight) and teratogenic (external, soft tissue and skeletal defects) effects were observed at relatively high oral doses that caused no or minimal maternal toxicity.

12. Ecological Information

Ecotoxicity Components of this product have been identified as having potential environmental concerns.

Ecotoxicity - Freshwater Algae Data

Ethylene glycol	107-21-1	96 Hr EC50 Selenastrum capricornutum: 6500-1300 mg/L
Triethanolamine	102-71-6	72 Hr EC50 Scenedesmus subspicatus: 216 mg/L; 96 Hr EC50 Scenedesmus subspicatus: 169 mg/L

Ecotoxicity - Freshwater Fish Species Data

Ethylene glycol	107-21-1	96 Hr LC50 Oncorhynchus mykiss: 41000 mg/L; 96 Hr LC50 Lepomis macrochirus: 27500 mg/L; 96 Hr LC50 Oncorhynchus mykiss: 40761 mg/L [static]; 96 Hr LC50 Pimephales promelas: 49000 mg/L [static]; 96 Hr LC50 Poecilia reticulata: 16000 mg/L [static]
Triethanolamine	102-71-6	96 Hr LC50 Pimephales promelas: 11800 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 450-1000 mg/L [static]

Ecotoxicity - Microtox Data

Ethylene glycol	107-21-1	30 Min EC50 Photobacterium phosphoreum: 620.0 mg/L; 30 min EC50 Photobacterium phosphoreum: 620 mg/L; 16 Hr EC50 Pseudomonas putida: 10000 mg/L
Triethanolamine	102-71-6	30 Min EC50 Pseudomonas putida: >10000 mg/L

Ecotoxicity - Water Flea Data

Ethylene glycol	107-21-1	48 Hr EC50 water flea: 46300 mg/L
Triethanolamine	102-71-6	24 Hr EC50 Daphnia magna: 1386 mg/L

Environmental effects	Not available
Aquatic toxicity	Not available
Persistence / degradability	Not available
Bioaccumulation / accumulation	Not available
Partition coefficient	Not available
Mobility in environmental media	Not available
Chemical fate information	Not available

13. Disposal Considerations

Waste codes	Not available
Disposal instructions	Dispose in accordance with all applicable regulations.
Waste from residues / unused products	Not available
Contaminated packaging	Not available

14. Transport Information

U.S. Department of Transportation (DOT)

Not regulated as dangerous goods.

Transportation of Dangerous Goods (TDG - Canada)

Not regulated as dangerous goods.

15. Regulatory Information

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

Canada - WHMIS - Ingredient Disclosure List

Ethylene glycol	107-21-1	1 %
Triethanolamine	102-71-6	1 %

US Federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

Ethylene glycol	107-21-1	5000 Lb final RQ; 2270 kg final RQ
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U.S. - CERCLA/SARA - Section 313 - Emission Reporting

Ethylene glycol	107-21-1	1.0 % de minimis concentration
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Occupational Safety and Health Administration (OSHA)

29 CFR 1910.1200 hazardous chemical Yes

CERCLA (Superfund) reportable quantity

Ethanol, 2,2"-iminobis-: 100.0000
1,2-Ethanediol: 5000.0000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance No

Section 311 hazardous chemical Yes

Clean Air Act (CAA) Not available

Clean Water Act (CWA) Not available

Safe Drinking Water Act (SDWA) Not available

Drug Enforcement Agency (DEA) Not available

Food and Drug Administration (FDA) Not available

WHMIS status Controlled

WHMIS classification Class D - Division 1B, 2A, 2B

WHMIS labeling



State regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

U.S. - California - 8 CCR Section 339 - Director's List of Hazardous Substances

Ethylene glycol 107-21-1 Present (exempt when vapors or particulates are formed due to work practices or procedures)

U.S. - Illinois - Toxic Air Contaminants

Ethylene glycol 107-21-1 Present

U.S. - Louisiana - Reportable Quantity List for Pollutants

Ethylene glycol 107-21-1 5000 Lb RQ (applies to unauthorized emissions based on total mass emitted into or onto all media within any consecutive 24-hour period); 5000 lb RQ (applies to unauthorized emissions based on total mass emitted into the atmosphere)

U.S. - Massachusetts - Right To Know List

Ethylene glycol 107-21-1 Present

Triethanolamine 102-71-6 Present

U.S. - Minnesota - Hazardous Substance List

Ethylene glycol 107-21-1 Present (particulate and vapor)

Triethanolamine 102-71-6 Present

U.S. - New Jersey - Right to Know Hazardous Substance List

Ethylene glycol 107-21-1 sn 0878

U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

Ethylene glycol 107-21-1 1 Lb RQ (air); 1 lb RQ (land/water)

U.S. - Pennsylvania - RTK (Right to Know) List

Ethylene glycol 107-21-1 Environmental hazard

Triethanolamine 102-71-6 Present

U.S. - Rhode Island - Hazardous Substance List

Ethylene glycol 107-21-1 Toxic; Flammable

Triethanolamine 102-71-6 Flammable

Inventory name

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

Disclaimer

Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

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Prepared by

Miura North America Inc.