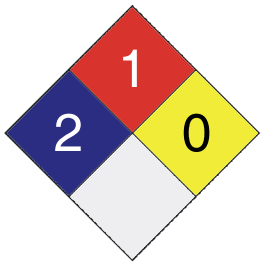
MATERIAL SAFETY DATA SHEET

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.** 1945 South Myrtle Ave Monrovia, CA 91016-4854 USA Phone: 626-305-6622 Fax: 626-305-6624

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/m3 **OSHA-PEL** Not established
Triethanolamine	**ACGIH-TLV** TWA: 5 mg/m3 **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 (H2O)	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

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

Ethylene glycol	107-21-1	1.0 % de minimis concentration

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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