World Headquarters
Hach Company
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MSDS No: M00261

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Name: Ethylene Glycol
Catalog Number: 203953

HACH LANGE GmbH
Willstätterstrasse 11
40549 Düsseldorf, Germany
+49 -(0)211 -52880

Emergency Telephone Numbers:
(Poison Information Center Main)
(+49 (0) 6131 19240) 24 HR

SDS Number: M00261
Chemical Name: 1,2 -Ethanediol
Chemical Formula: $C_2H_6O_2$
Chemical Family: Alcohols
Use of the substance/preparation: Laboratory Reagent
CAS No.: 107 -21-1
Hazard: Toxic.
Date of MSDS Preparation:
Day: 31
Month: 05
Year: 2006
Additional Emergency Response Numbers: Austria: +49 (0)6131 19240, Belgium: +32 -(0)70 -245245, France: +33 (0)1 -40370404, Italy: +39 -02-66101029, Netherlands: +31 -(0)30 -2748888, Switzerland: +41 -(0)1 -2515151

2. COMPOSITION / INFORMATION ON INGREDIENTS

Ethylene Glycol
EEC Number: 2034733
CAS No.: 107 -21 -1
Percent Range: 100,0
Percent Range Units: volume / volume
Ingredient EEC Symbol: Xn - HARMFUL
Ingredient R phrase(s) (R phrase details given in Heading 16): R 22
TLV: 50 ppm ceiling
PEL: 50 ppm ceiling
EU Occupational Exposure Limits: 10 ppm (26 mg/m ^{3})

3. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance: Clear, viscous liquid
Odor: Sweet
EU Symbols: Xn - HARMFUL
R PHRASES: R 22: Harmful if swallowed.

Protective Equipment:
Potential Health Effects:
Eye Contact (EC): Causes mild irritation
Skin Contact (EC): Causes mild irritation
Skin Absorption (EC): Will be absorbed through the skin.
Target Organs (SA E): Brain Central nervous system Kidneys Liver

Inges tion (EC): Causes: central nervous system depression drunkenness May cause: nausea vomiting abdominal pain weakness convulsions coma death liver damage kidney damage

Target Organs (Ing E): Brain Central nervous system Liver Kidneys

Inhalation: May cause: drunkenness

Target Organs (Inh E): None Reported

Medical Conditions Aggravated: Pre -existing: Liver conditions Kidney conditions

Chronic Effects: Chronic overexposure may cause brain damage kidney damage liver damage

Cancer / Reproductive Toxicity Information:

IARC Listed: No

Additional Cancer / Reproductive Toxicity Information: an experimental teratogen.

Toxicologically Synergi stic Products: None reported

4. FIRST AID MEASURES

Eye Contact: Flush eyes with water. Call physician if irritation develops.

Skin Contact (First Aid): Wash skin with soap and plenty of water. Call phys ician if irritation develops.

Ingestion (First Aid): Induce vomiting using syrup of ipecac or by sticking finger down throat. Never give anything by mouth to an unconscious person. Call physician immediately.

Inhalation: Remove to fresh air.

5. FIRE FIGHTING MEASURES

Flammable Properties: Can burn in fire, releasing toxic vapors.

Hazardous Combustion Products: Toxic fumes of: carbon monoxide, carbon dioxide.

Fire / Explosion Hazards: May react violently with: strong acids strong oxidizers

Static Discharge: None reported.

Mechanical Impact: None reported

Extinguishing Media: Alcohol foam. Carbon dioxide Dry chemical. Water.

Extinguishing Media NOT To Be Used: Not applicable Not applicable Not applicable Not applicable

Fire Fighting Instruction: As in any fire, wear self -contained breathing apparatus pressure -demand and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:

Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

Containment Technique: Re leases of this material may contaminate the environment. Absorb spilled liquid with non - reactive sorbent material. Dike large spills to keep spilled material from entering sewage and drainage systems or bodies of water.

Clean -up Technique: Absorb spi lled liquid with non -reactive sorbent material. Sweep up material. Dispose of material in an E.P.A. approved hazardous waste facility. Decontaminate the area of the spill with a soap solution.

Evacuation Procedure: Evacuate as needed to perform spil l clean -up. If conditions warrant, increase the size of the evacuation.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes skin Do not breathe mist or vapors. Wash thoroughly after handling. Mainta in general industrial hygiene practices when using this product.

Storage: Keep away from: acids oxidizers

Special Packaging Instructions: Not applicable

Use of the substance/preparation: Laboratory Reagent

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Maintain adequate ventilation to keep vapor level below TWA for chemicals in this product. Maintain general industrial hygiene practices when usin g this product.

Personal Protective Equipment:

Eye Protection: chemical splash goggles

Skin / Hand Protection: neoprene latex gloves lab coat
Inhalation Protection: dust / mist mask and / or laboratory fume hood
Precautionary Measures: Avoid contact with: eyes skin Do not breathe: mist/vapor Wash thoroughly after handling. Keep away from: acids/acid fumes oxidizers
TLV: 50 ppm ceiling
PEL: 50 ppm ceiling
EU Occupational Exposure Limits: 10 ppm (26 mg/m ^{3})

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Clear, viscous liquid
Physical State: Liquid
Odor: Sweet
pH: Not determined
Vapor Pressure: 0,05 mm @ 20°C
Vapor Density (air = 1): 2,14
Boiling Point: 197°C; 387°F
Melting Point: -13°C; 8,6°F
Flash Point: 115°C; 240°F
Method: Closed cup
Autoignition Temperature: 398°C; 748°F
Flammability Limits:
Lower Explosion Limits: 3,2%
Upper Explosion Limits: 15,3%
Specific Gravity (water = 1): 1,11
Evaporation Rate (water = 1): Not available
Volatile Organic Compounds Content: Not available
Partition Coefficient (n-octanol / water): Log K_{ow} = -1,36
Solubility:
Water: Miscible
Acid: Miscible with acetic acid
Other: Miscible with acetone, lower alcohols. Immiscible with chlorinated solvents, benzene.
Metal Corrosivity:
Steel: Not determined
Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Moisture: substance is hygroscopic. Extreme temperatures Contact with heat, sparks, open flames or other ignition sources.
Reactivity / Incompatibility: Incompatible with: acids oxidizers oleum
Hazardous Decomposition: Toxic fumes of: carbon monoxide carbon dioxide
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: Oral rat LD50 = 4700 mg/kg; oral human LDLo = 398 mg/ kg
LC50: Inhalation rat LC50 = 10876 mg/kg
Dermal Toxicity Data: Skin rabbit LD50 = 9530 mg/kg
Skin and Eye Irritation Data: Eye - rabbit - 500 mg/24 hours MILD; Eye - rabbit - 1440 mg/6 hours MODERATE; Skin - rabbit - 555 mg open MILD
Mutation Data: DNA inhibition - human: lymphocyte 320 mmol/l; Mutation in somatic mammalian cells - mouse: lymphocyte 100 mmol/l
Reproductive Effects Data: Oral rat TDLo = 50 mg/kg (6-15 days pregnant) musculoskeletal, blood and lymphatic system abnormalities
Oral rat TDLo = 25 mg/kg (6-15 days pregnant) fetotoxicity, maternal effects, litter size
Ingredient Toxicological Data: --
Not applicable
IARC Listed: No

12. ECOLOGICAL INFORMATION

Product Ecological Information: Goldfish LD50 = 5000 mg/l/24H; Rainbow trout LC50 = 18500 mg/l/96H; Toxicity threshold Algae = 2000 mg/l; BOD = 0,47 g oxygen/g Ethylene Glycol

Ingredient Ecological Information: --
Not applicable

13. DISPOSAL CONSIDERATIONS

NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmen tal regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country -specific regulations or must be passed to a packaging return system.

14. TRANSPORT INFORMATION

I.C.A.O.:
I.C.A.O. Proper Shipping Name: Not Currently Regulated
--
ICAO Hazard Class: NA
ICAO Subsidiary Risk: NA
ICAO UN/ID Number: NA
ICAO Packing Group: NA
I.M.O.:
I.M.O. Proper Shipping Name: Not Currently Regulated
--
I.M.O. Hazard Class: NA
I.M.O. Subsidiary Risk: NA
I.M.O. UN Number: NA
I.M.O. Packing Group: NA
A.D.R.:
A.D.R. Proper Shipping Name: Not Currently Regulated
--
A.D.R Hazard Class: NA
A.D.R. Subsidiary Risk: NA
A.D.R. UN -Number:: NA
A.D.R. Packing Group: NA
Additional Information: This product may be shipped as part of a chemical kit composed of various compatible dangerous goods for analytical or testing purposes. This kit would have the following classification: Proper Shipping Name: Chemical Kit Hazard Class: 9 UN Number 3316

15. REGULATORY INFORMATION

National Inventories:
EEC Inventory Status: EINECS Listed: Yes
EEC Number: 2034733
EEC LABEL COPY:
EU Symbols: Xn - HARMFUL
R PHRASES: R 22: Harmful if s wallowed.
S PHRASES: Not applicable

16. OTHER INFORMATION

References: 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1 989. pp. 2332 -2983. TLV's Threshold Limit Values and Biological Exposure Indices for 1992 -1993. American Conference of Governmental Industrial Hygienists, 1992. The Merck Index, 11th Ed. Rahway, New Jersey: Merck and Co., Inc., 1989. CCINFO RTECS. Canadian Centre for Occupational Health and Safety.

Hamilton, Ontario Canada: 30 June 1993. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992. Technic al Judgment. Vendor Information. EU Occupational Exposure Limits On Line.

R PHRASES: R 22: Harmful if swallowed.

Use of the substance/preparation: Laboratory Reagent

Revision Summary: Updates in Section(s) 14,

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.