MATERIAL SAFETY DATA SHEET

Ethylene Glycol

SECTION 1 . Product and Company Idenfication

Product Name and Synonym: Ethylene Glycol

Product Code: E8275

Material Uses:

Manufacturer: Science Stuff
1104 Newport Ave

Austin, TX 78753
(512) 837-6020

Entry Date : 6/4/2013

Print Date: 6/4/2013

24 Hour Emergency Assistance : Chemtrec 800-424-9300
Canutec 613-996-6666

Health:	2
Flammability:	1
Reactivity:	0

Hazard Rating:
Least 0 Slight 1 Moderate 2 High 3 Extreme 4

NA=Not Applicable NE=Not Established

SECTION 2 HAZARD IDENTIFICATION

Keep away from heat and ignition sources. May be harmful if swallowed. Avoid breathing vapor or dust. Use with adequate ventilation. Avoid contact with eyes, skin, and clothes. Wash thoroughly after handling. Keep container closed.

Physical state: Liquid.
OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview:
MAY BE HARMFUL IF ABSORBED THROUGH SKIN.
MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
MAY BE HARMFUL IF INHALED
MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS:
RESPIRATORY TRACT, SKIN, EYE
CENTRAL NERVOUS SYSTEM
HARMFUL OR FATAL IF SWALLOWED

Do not breath vapor or mist. Do not ingest. Do
not get in eyes or on skin or clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Routes of entry:
Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects:

Eyes: May cause eye irritation
Skin: May be harmful in contact with skin. May cause skin irritation.
Inhalation: May cause respiratory irritation.
Ingestion: Toxic if swallowed.
Carcinogenicity: No known significant effects or critical hazards.
Mutagenicity: No known significant effects or critical hazards.
Teratogenicity/ Reproductive toxicity: No known significant effects or critical hazards.
Developmental effects: No known significant effects or critical hazards.
Fertility effects: No known significant effects or critical hazards.
Target organs: May cause damage to the following organs:
upper respiratory tract, skin, eyes, central nervous system (CNS).
Medical conditions aggravated by over-exposure:
Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product

SECTION 3 MIXTURE COMPONENTS

SARA 313	Component	CAS Number	Percent Comp.	Dimension	Exposure Limits
☑	Ethylene Glycol	CAS# 107-21-1	100%	V/V	OSHA PEL 127 mg/mƒ (50 ppm) ceiling, Vapor & mist

SECTION 4 FIRST AID MEASURES

Keep away from heat and ignition sources. May be harmful if swallowed. Avoid breathing vapor or dust. Use with adequate ventilation. Avoid contact with eyes, skin, and clothes. Wash thoroughly after handling. Keep container closed.

FIRST AID: SKIN: Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention

EYES: Wash eyes with plenty of water for at least 15 minutes, lifting lids occasionally. Seek Medical Aid. INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen

INGESTION: If swallowed, induce vomiting immediately after giving two glasses of water. Never give anything by mouth to an unconcious person.

SECTION 5 FIRE FIGHTING MEASURES

Fire Extinguisher Type:	Apply alcohol or all purpose foam for larger fires. Carbon dioxide may be used for smaller fires.
Fire / Explosion Hazards:	Fire possible at elevated tempuratures.
Fire Fighting Procedure:	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and clothing.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Absorb spill with inert material, then place in a chemical waste container. Dispose of in a manner consistent with federal, local law.

Personal precautions: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personal from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Provide adequate ventilation. Were appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Spill: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-Proof tools and explosion- proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal. Dilute with water and mop up if water- soluble or absorb with an inert dry material and place in an appropriate waste disposal container.

SECTION 7 HANDLING AND STORAGE

Store in a cool, dry, well-ventilated place away from incompatible materials. Wash thoroughly after handling.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection: None required

Ventilation

Local Exhaust ☑

Mechanical ☐

Protective Gloves: Wear appropriate gloves to prevent skin exposure

Eye Protection: Splash Goggles

Other Protective Equipment: Wear appropriate clothing to prevent skin exposure

Ethylene Glycol

OSHA PEL 1989 (United States, 3/1989)
CEIL: 50 ppm
CEIL: 125 mg/m3
ACGIH TLV (United States, 1/2008)
C: 100 mg/m3 Form: Aerosol

Engineering measurers: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking, and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protection

Eyes: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
Recommended: splash goggles
Skin: Personal protective equipment for the body should be selected based on the task being performed and risks involved and should be approved by a specialist before handling this product.
Body recommended: lab coat
Respiratory: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Hands: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a

risk assessment indicates this is necessary.
Recommended: nitrile rubber
Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Melting Point:	-13 Deg C	Percent Volatile by Volume:	
Boiling Point:	>197 Deg C	Evaporation Rate	0.01
Vapor Pressure:	0.08 mmHG	Evaporation Standard	Butylacetate =1
Vapor Density:	2.1	Auto Ignition Temp	Not applicable
Solubility in Water:	Soluble	Lower Flamm. Limit in Air	3.2 approximate
Appearance /Odors:	Colorless mildly sweet liquid	Upper Flamm. Limit in Air	15.3 approximate
Flash Point:	116.1 C (241 F)		
Specific Gravity:	1.115 @20 C		

SECTION 10 STABILITY AND REACTIVITY INFORMATION

Stability:	Stable
Conditions to Avoid:	None known
Materials to Avoid:	Strong acids, bases, strong oxidizing agents.
Hazardous Decomposition Products:	Carbon dioxide, carbon monoxide
Hazardous polymerization:	Will Not Occur
Conditions to Avoid:	None known

SECTION 11 Toxicological Information

Toxicity data- United States- Product/ ingredient name:

Ethylene Glycol

LD50	9530 uL/kg	Dermal	Rabbit
LD50	5010 mg/kg	Intraperitoneal	Rat
LD50	3260 mg/kg	Intravenous	Rat
LD50	4700 mg/kg	Oral	Rat
LD50	2000 mg/kg	Oral	Cat
LD50	1650 mg/kg	Oral	Cat
LD50	2800 mg/kg	Subcutaneous	Rat
LD50	13 g/kg	Unreported	Rat
LDLo	786 mg/kg	Oral	human
LDLo	398 mg/kg	Oral	human
LDLo	2800 mg/kg	Intravenous	Rat
LDLo	3300 mg/kg	Intramuscular	Rat
TDLo	1110 mg/kg	Oral	Rat
TDLo	1000 mg/kg	Oral	Rat
TDLo	120 mg/kg	Oral	Rat
TDLo	3000 mg/kg	Subcutaneous	Rat
TDLo	5000 mg/kg	Oral	Rat

Specific effects

Carcinogenic effects: No known significant effects or critical hazards.
Mutagenic effects: No known significant effects or critical hazards.
Teratogenicity/Reproductive toxicity: No known significant effects or critical hazards.

SECTION 12 Ecological Information

Aquatic toxicity

Product/ ingredient name

Ethylene Glycol

Acute LC50 49000 mg/L Fish 96 hours
Acute LC50 41000 mg/L Fish 96 hours
Acute LC50 27540 mg/L Fresh water Fish – Blue – Lepomis marcochirus – Juvenile (Fledgling, Hatchling, Weanling) – 0.85 g
Acute LC50 >18500 mg/L Fresh water Fish – Rainbow trout, Donaldson trout – Oncorhychus mykiss 96 hours
Acute LC50 >10000 mg/L Fish 96 hours
Acute LC50 8050 mg/L Fish 96 hours
Acute LC50 41 to 47 ml/L Fresh water Fish – Rainbow trout – Oncorhynchus mykiss – 0.7 g 96 hours
Acute LC50 16 to 18 ml/L Fresh water Fish – Rainbow trout – Oncorhynchus mykiss – 1.1 g 96 hours
Acute LC50 53000 mg/L Fish 96 hours
Acute LC50 10000000 to 12300000 ug/L Fresh water Daphnia – Water flea – Ceriodaphnia dubia – Neonate 48 hours
Acute LC50 >10000000 ug/L Fresh water Fish – Fathead minnow – Pimephales promelas 96 hours
Acute LC50 >10000000 ug/L Fresh water Daphnia – Water flea – Daphnia magna 48 hours
Acute LC50 8050000 ug/L Fresh water Fish – Fathead minnow – Pimephales promelas - <=7 days 96 hours
Acute LC50 6900000 to 8800000 ug/L Fresh water Daphnia – Water flea – Ceriodaphnia dubia – Neonate 48 hours
Acute LC50 >100000 ug/L Marine water Crustaceans – Common shrimp, sand shrimp – Crangon crangon – Adult 48 hours
Acute LC50 1000000000 ug/L Marine water Crustaceans – Common shrimp, sand shrimp – Crangon crangon 48 hours
Acute LC50 53000000 to 56000000 ug/L Fresh water Fish – Fathead minnow – Pimephales promelas – FRY – 10 to 15 days – 9.5 mm – 11.6 mg 96 hours
Acute LC50 49000000 to 60000000 ug/L Fresh water Fish – Fathead minnow – Pimephales prmelas - Juvenile (Fledgling, Hatchling, Weanling) – 30 to 35 days – 14.9 mm – 76.8 mg 96 hours
Acute LC50 25500000 to 29800000 ug/L Fresh water Daphnia – Water flea – Ceriodaphnia dubia – Neonate 48 hours
Acute LC50 10500000 to 12700000 ug/L Fresh water Daphnia – Water flea – Ceriodaphnia dubia – Neonate 48 hours
Acute LC50 22600000 to 26500000 ug/L Fresh water Daphnia –Water flea – Ceriodaphnia dubia – Neonate 48 hours
Acute LC50 13900000 to 16600000 ug/L Fresh water Daphnia – Water flea – Ceriodaphnia dubia- Neonate 48 hours
Acute LC50 13140000 ug/L Fresh water Daphnia – Water flea – Ceriodaphnia dubia - <=24 hours 48 hours
Chronic NOEC 6090000 ug/L Fresh water Fish – Fathead minnow – Pimephales promelas - <=7 days 96 hours
Chronic NOEC 24000000 ug/L Fresh water Daphnia – Water flea – Ceriodapnia dubia - <=24 hours 48 hours
Chronic NOEC 39140000 ug/L Fresh water Fish – Fathead minnow – Pimephales promelas - <=7 days 96 hours
Chronic NOEC 11610000 ug/L Fresh water Daphnia – Water flea – Ceriodaphnia dubia - <=24 hours 48 hours

Environmental effects : No known significant effects or critical hazards.
Other adverse effects : No known significant effects or critical hazards.

SECTION 13 Disposal Considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the toxicity and physical properties

of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14 Transport Information

DOT Classification: Not Regulated

DOT Regulations may change from time to time. Please consult the most recent D.O.T. regulations.

SECTION 15 Regulatory Information

United States

HCS Classification:
Highly toxic material
Target organ effects
Irritating material

Immediate (acute) health hazard, Delayed (chronic) health hazard
U.S. Federal regulations:

United States inventory (TSCA 8b): listed
TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.
SARA 302/304/311/312 extremely hazardous substances: No products were found
SARA 302/304 emergency planning and notifications: No products were found
SARA 302/304/311/312 hazardous chemicals: Ethylene Glycol
SARA 311/312 MSDS distribution- Chemical inventory- hazard identification: Ethylene Glycol
Clean Water Act (CWA) 307: No products were found
Clean Water Act (CWA) 311: No products were found
Clean Air Act (CAA) 112 accidental release prevention: No products were found
Clean Air Act (CAA) 112 regulated flammable substance: No products were found.
Clean Air Act (CAA) 112 regulated toxic substance: No products were found

DEA List I Chemicals : not listed
(Precursor Chemicals)
DEA List II Chemicals : not listed
(essential Chemicals)

SARA 313
Form R – Reporting Requirements: Ethylene Glycol
CAS number : 107-21-1 Concentration : 100

Supplier notification : Ethylene Glycol
CAS number : 107-21-1 Concentration : 100

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.
Massachusetts Substance : This material is listed.
New Jersey Hazardous Substances : This material is listed.
New York Acutely Hazardous Substances : This material is listed.
Pennsylvania RTK Hazardous Substances : This material is listed.

Canada
WHMIS (Canada) :
Class D-2B: Material causing other toxic effects (Toxic)
Canadian lists : CEPA Toxic Substance: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.
CEPA DSL/ CEPA NDSL : CEPA DSL:
This material is listed or exempted.
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.

SECTION 16 Additional Information

Flammability

Health

Reactivity

NFPA

Revisions
0.1

The information herein is believed to be accurate and is offered in good faith for the user's consideration and investigation. No warranty either expressed or implied is made for the completeness or accuracy of the information whether originating from the above mentioned company or not. Users of this material should satisfy themselves by independent investigation of current scientific and medical knowledge that the material can be used safely.