ETHYLENE GLYCOL INDUSTRIAL

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	07/29/2015	400001020108	Date of first issue: 07/29/2015

SECTION 1. IDENTIFICATION

Product name : ETHYLENE GLYCOL INDUSTRIAL

Manufacturer or supplier's details

Company name of supplier : Huntsman International LLC
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America
Telephone : TechInfo: (281) 719-7780

E-mail address of person responsible for the SDS : MSDS@huntsman.com

Emergency telephone : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Component of a Polyurethane System.
Gas treating

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Oral) : Category 4

Eye irritation : Category 2B

Specific target organ systemic toxicity - single exposure (Oral) : Category 2 (Kidney, Liver)

Specific target organ systemic toxicity - repeated exposure (Oral) : Category 2 (Kidney, Central nervous system)

GHS Label element

Hazard pictograms :

Signal Word : Warning

Hazard Statements : H302 Harmful if swallowed.
H320 Causes eye irritation.
H371 May cause damage to organs (Kidney, Liver) if swallowed.
H373 May cause damage to organs (Kidney, Central nervous system) through prolonged or repeated exposure if swallowed.

Precautionary Statements : **Prevention:**
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P309 IF exposed or if you feel unwell:
P313 Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
Storage:
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous ingredients

Chemical Name	CAS-No.	Concentration (%)
Ethylene glycol	107-21-1	>= 60 - <= 100
Ethylene glycol	107-21-1	95 - 100

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Show this material safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If unconscious place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Induce vomiting immediately and call a physician.
Keep respiratory tract clear.

Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

Most important symptoms and effects, both acute and delayed : None known.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : No data is available on the product itself.

Unsuitable extinguishing media : High volume water jet

Specific hazards during fire fighting : No data is available on the product itself.

Hazardous combustion products : No hazardous combustion products are known

Specific extinguishing methods : No data is available on the product itself.

Further information : Standard procedure for chemical fires.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Advice on safe handling : Do not breathe vapors/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

Materials to avoid : Strong acids
Keep away from oxidizing agents.

Strong bases

Strong oxidizing agents

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Ethylene glycol	107-21-1	C (Aerosol only)	100 mg/m3	ACGIH
		C	50 ppm 125 mg/m3	OSHA P0

Personal protective equipment

Respiratory protection : Wear a full face respirator conforming to EN 136 with type A/P2 filter or better

Respiratory protection : No personal respiratory protective equipment normally required.

Respiratory protection : In the case of vapor formation use a respirator with an approved filter.

Hand protection
Material : PVC
Neoprene
Nitrile rubber

Break through time : > 8 h

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection	:	Safety glasses with side-shields Eye wash bottle with pure water Tightly fitting safety goggles.
Skin and body protection	:	Wear suitable coveralls to prevent exposure to the skin. impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Color	:	colorless
Odor	:	sweet
Odor Threshold	:	No data is available on the product itself.
pH	:	6.5
Melting point	:	-13 °C
Freezing point		-12.7 °C
	:	197.4 °C
Flash point	:	111.1 °C Method: Pensky-Martens closed cup, closed cup
Evaporation rate	:	< 1
Flammability (solid, gas)	:	No data is available on the product itself.
Upper explosion limit	:	15.3 %(V)
Lower explosion limit	:	3.2 %(V)
Vapor pressure	:	< 0.1333 hPa (20 °C)
		0.1 hPa
		0.12 hPa
Relative vapor density	:	2.2
		2.1

Relative density	:	1.1
Density	:	1.113 g/cm3 Method: DIN 51757
Solubility(ies)		
Water solubility	:	1,000 g/l completely miscible (20 °C)
Solubility in other solvents	:	Solvent: Methanol Description: soluble
Partition coefficient: n-octanol/water	:	log Pow: -1.36
Autoignition temperature	:	398 °C
Decomposition temperature	:	> 500 °C
Viscosity		
Viscosity, dynamic	:	21 mPa.s (20 °C) Method: DIN Method, other 16.1 mPa.s
Viscosity, kinematic	:	18.7 mm2/s (20 °C)
Oxidizing properties	:	None.
Self-Accelerating decomposition temperature (SADT)	:	No data is available on the product itself.
Molecular weight	:	62.07 g/mol

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	Stable under normal conditions. No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	Incompatible with oxidizing agents. Stable under normal conditions. No decomposition if stored and applied as directed.
Conditions to avoid	:	Exposure to moisture. No data available
Hazardous decomposition products	:	Carbon monoxide Carbon dioxide (CO2) Aldehydes

Ketones

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : No data is available on the product itself.

Acute toxicity

Acute oral toxicity - Product : Acute toxicity estimate : 1,616 mg/kg
Method: Calculation method

Acute inhalation toxicity : No data available

Acute dermal toxicity - Product : LD50 (Rabbit): 9,530 mg/kg

Acute toxicity (other routes of administration) : No data available

Skin corrosion/irritation

Product:

Remarks: May cause skin irritation in susceptible persons.

Serious eye damage/eye irritation

Product:

Remarks: Vapors may cause irritation to the eyes, respiratory system and the skin.

Respiratory or skin sensitization

Ingredients:

Ethylene glycol**:**
Routes of exposure: Skin
Species: Guinea pig
Result: Does not cause skin sensitization.

Ethylene glycol**:**
Routes of exposure: Skin
Species: Guinea pig
Result: Does not cause skin sensitization.

Assessment: No data available

Germ cell mutagenicity

Ingredients:

Ethylene glycol**:**
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Result: negative

Metabolic activation: with and without metabolic activation

Result: negative

Metabolic activation: with and without metabolic activation
Result: negative

Ethylene glycol**:**
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Result: negative

Metabolic activation: with and without metabolic activation
Result: negative

Metabolic activation: with and without metabolic activation
Result: negative

Ingredients:

Ethylene glycol**:**
Genotoxicity in vivo : Cell type: Germ
Application Route: Oral
Dose: 1000 mg/kg
Result: negative

Application Route: Oral
Result: negative

Ethylene glycol**:**
Genotoxicity in vivo : Cell type: Germ
Application Route: Oral
Dose: 1000 mg/kg
Result: negative

Application Route: Oral
Result: negative

Carcinogenicity

Ingredients:

Ethylene glycol**:**
Species: Rat, (male and female)
Application Route: Oral
Exposure time: 24 month(s)
Dose: 1000 mg/kg
Frequency of Treatment: 7 daily
Result: negative

Species: Mouse, (male and female)
Application Route: Oral
Exposure time: 103 weeks
Dose: 1500 mg/kg
Result: negative

Ethylene glycol**:**
Species: Rat, (male and female)
Application Route: Oral
Exposure time: 24 month(s)

Dose: 1000 mg/kg
Frequency of Treatment: 7 daily
Result: negative

Species: Mouse, (male and female)
Application Route: Oral
Exposure time: 103 weeks
Dose: 1500 mg/kg
Result: negative

Carcinogenicity - Assessment : No data available

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Effects on fertility : No data available

Ingredients:

Ethylene glycol**:**
Effects on fetal development : Species: Rabbit, male and female
Application Route: Oral
Result: No teratogenic effects.

Ethylene glycol**:**

Species: Rabbit, male and female
Application Route: Oral
Result: No teratogenic effects.

Reproductive toxicity - Assessment : No data available

STOT-single exposure

Ingredients:

Ethylene glycol**:**
Routes of exposure: Ingestion
Target Organs: Kidney, Liver
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 2.

Ethylene glycol**:**
Routes of exposure: Ingestion
Target Organs: Kidney, Liver
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 2.

STOT-repeated exposure

Ingredients:

Ethylene glycol**:**
Routes of exposure: Ingestion
Target Organs: Kidney, Central nervous system
Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

Ethylene glycol**:**
Routes of exposure: Ingestion
Target Organs: Kidney, Central nervous system
Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

Repeated dose toxicity

Ingredients:

Ethylene glycol**:**
Species: Rat, male and female
NOAEL (No observed adverse effect level): 200 mg/kg/d
Application Route: Ingestion
Exposure time: 17,280 h
Method: Chronic toxicity

Species: Rat, male
NOAEL (No observed adverse effect level): 150 mg/kg/d
Application Route: Ingestion
Exposure time: 8,640 h
Number of exposures: 7 d
Method: Chronic toxicity

Ethylene glycol**:**
Species: Rat, male and female
NOAEL (No observed adverse effect level): 200 mg/kg/d
Application Route: Ingestion
Exposure time: 17,280 h
Method: Chronic toxicity

Species: Rat, male
NOAEL (No observed adverse effect level): 150 mg/kg/d
Application Route: Ingestion
Exposure time: 8,640 h
Number of exposures: 7 d
Method: Chronic toxicity

Repeated dose toxicity - Assessment : No data available

Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Product:

Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:

Ethylene glycol**:**
Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 72,860 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

Ethylene glycol**:**
Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 72,860 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

Ingredients:

Ethylene glycol**:**
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Ethylene glycol**:**
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Ingredients:

Ethylene glycol**:**
Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 6,500 - 13,000 mg/l
Exposure time: 96 h

Ethylene glycol**:**
Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 6,500 - 13,000 mg/l
Exposure time: 96 h

M-Factor (Acute aquatic toxicity) : No data available

Ingredients:

Ethylene glycol**:**
Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 15,380 mg/l
Exposure time: 7 d
Test Type: static test
Test substance: Fresh water

Ethylene glycol**:**
Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 15,380 mg/l
Exposure time: 7 d
Test Type: static test
Test substance: Fresh water

Ingredients:

Ethylene glycol**:**
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Ceriodaphnia dubia (Water flea)): 8,590 mg/l
Exposure time: 7 d
Test Type: static test
Test substance: Fresh water

Ethylene glycol**:**
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Ceriodaphnia dubia (Water flea)): 8,590 mg/l
Exposure time: 7 d
Test Type: static test
Test substance: Fresh water

M-Factor (Chronic aquatic toxicity)	:	No data available
Toxicity to bacteria	:	No data available
Toxicity to soil dwelling organisms	:	No data available
Plant toxicity	:	No data available
Sediment toxicity	:	No data available
Toxicity to terrestrial organisms	:	No data available
Ecotoxicology Assessment Acute aquatic toxicity	:	No data available
Chronic aquatic toxicity	:	No data available
Toxicity Data on Soil	:	No data available
Other organisms relevant to the environment	:	No data available

Further information:
No data available

Persistence and degradability

Ingredients:

Ethylene glycol**:**

Biodegradability	:	Inoculum: activated sludge Result: Readily biodegradable. Biodegradation: 90 - 100 % Exposure time: 10 d Method: OECD Test Guideline 301A

Ethylene glycol**:**

Biodegradability	:	Inoculum: activated sludge Result: Readily biodegradable. Biodegradation: 90 - 100 % Exposure time: 10 d Method: OECD Test Guideline 301A
Biochemical Oxygen Demand (BOD)	:	No data available
Chemical Oxygen Demand (COD)	:	No data available
BOD/COD	:	No data available
ThOD	:	No data available

BOD/ThOD	:	No data available
Dissolved organic carbon (DOC)	:	No data available
Physico-chemical removability	:	No data available
Stability in water	:	No data available

Ingredients:

Ethylene glycol: Photodegradation	:	Rate constant: < .00001
Ethylene glycol: Photodegradation	:	Rate constant: < .00001
Impact on Sewage Treatment	:	No data available

Bioaccumulative potential

Bioaccumulation	:	No data available
Partition coefficient: n-octanol/water - Product	:	log Pow: -1.36

Mobility in soil

Mobility	:	No data available
Distribution among environmental compartments	:	No data available
Stability in soil	:	No data available

Other adverse effects

Environmental fate and pathways	:	No data available
Results of PBT and vPvB assessment	:	No data available
Endocrine disrupting potential	:	No data available
Adsorbed organic bound halogens (AOX)	:	No data available

Hazardous to the ozone layer

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was

manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information - Product	:	No data available
Global warming potential (GWP)	:	No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulation

IATA
Not regulated as a dangerous good

IMDG
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation

DOT Classification

UN/ID/NA number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ETHYLENE GLYCOL)
Class	:	9
Packing group	:	III
Labels	:	CLASS 9
ERG Code	:	171
Marine pollutant	:	no

SECTION 15. REGULATORY INFORMATION

TSCA - 5(a) Significant New Use Rule List of Chemicals : Not relevant

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

Ingredients	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
MONOETHYLENE GLYCOL (MEG)	107-21-1	5000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards : Chronic Health Hazard
Acute Health Hazard
No SARA Hazards

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Ethylene glycol 107-21-1 99 %

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

Ethylene glycol 107-21-1 99 %

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

California Prop 65 This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

The ingredients of this product are reported in the following inventories:

CH INV	:	On the inventory, or in compliance with the inventory
TSCA	:	On TSCA Inventory
DSL	:	All components of this product are on the Canadian DSL.
AICS	:	On the inventory, or in compliance with the inventory
NZIoC	:	On the inventory, or in compliance with the inventory
ENCS	:	On the inventory, or in compliance with the inventory
ISHL	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory

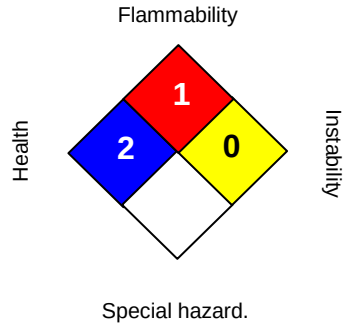
Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	2*
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,

2 = Moderate, 3 = High

4 = Extreme, * = Chronic

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While the information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

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