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Part #: C1037

Safety Data Sheet

Glycol Ether EE

Effective Date: 03/29/2013
Page 1 of 12

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

Trade name Glycol Ether EE
Synonyms β -Ethoxyethanol; Cellosolve; Ethylglycol; Ethyl Ether Monoethylene Glycol; EEMEG.

Company Name: TRInternational, Inc.
Address: Seattle, WA 98101
Phone: +1-206-505-3500 Fax: +1-206-505-3501

Emergency Phone Numbers: CONTACT INFOTRAC 1-800-535-5053 (24 hours) Acct # 79932
001-352-323-3500 (24 hours) Acct # 79932

2. HAZARD IDENTIFICATION

Classification

Flammable liquids, Category 3
Acute toxicity - Inhalation, Category 4
Acute toxicity - Oral, Category 4
Reproductive toxicity, Category 1A

Label Elements

Hazard Pictograms



Signal Word

DANGER

Hazard Statements

H226 Flammable liquid and vapour.
H302 Harmful if swallowed. H332 Harmful if inhaled.
H360 May damage fertility or the unborn child.

*****Safety Data Sheet

Glycol Ether EE

Effective Date: 03/29/2013
Page 2 of 12

2. HAZARD IDENTIFICATION (CONTINUED)

Precautionary Statements P281 Use personal protective equipment as required.
P201 Obtain special instructions before use.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P308+P313 IF exposed or concerned: Get medical advice/attention. P370+P378 In case of fire: Use media appropriate for extinction.
P501 Dispose of contents / container in accordance with current legislation. P202 Do not handle until all safety precautions have been read and understood. P210 Keep away from heat/ sparks/open flames/hot surfaces. — No smoking. P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting equipment. P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge. P261 Avoid breathing gas/mist/vapours/spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 Call a POISON CENTER or doctor/physician if you feel unwell. P301+P330 IF SWALLOWED: Rinse mouth.
P403+P235 Store in a well-ventilated place. Keep cool. P405 Store locked up.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Brand or Generic Chemical Name	Ethylglycol
CAS Number	110-80-5
EINECS/NLP number	203-804-1

Impurities which contribute to the classification of the substance

There are no impurities which contribute to the classification of the substance.

4. FIRST-AID MEASURES

Procedure in Case of:

Ingestion

Seek prompt medical attention.

Do not induce vomiting.

Vomiting should only be induced by medical personnel.

If vomiting occurs, keep the head lower than chest to avoid aspiration into the lungs. Never give anything by mouth to an unconscious or convulsing person.

Inhalation

Seek prompt medical attention.

Remove victim to fresh air.

If breathing is difficult, give oxygen.

If not breathing, give artificial respiration.

*****Safety Data Sheet

Glycol Ether EE

Effective Date: 03/29/2013
Page 3 of 12

4. FIRST-AID MEASURES (CONTINUED)

Skin contact

Remove contaminated clothing and shoes. Wash affected areas with plenty of running water, preferably under a shower.

Seek prompt medical attention.

Eye contact

Immediately flush with plenty of running water for at least 15 minutes, keeping eyelids open.

Remove contact lenses if easy to do. Seek prompt medical attention.

Most important symptoms/effects, acute and delayed

Ingestion- It is toxic to the blood, kidneys, lungs and liver. May cause: Dizziness. Nausea. Vomiting. Loss of consciousness. May affect the central nervous system. Symptoms: Muscle spasms. Pulmonary edema. Cyanosis.

Inhalation- Dangerous concentrations can be achieved in air by evaporation of the product even at room temperature. Irritating to the respiratory tract. Repeated and/or prolonged exposure, without adequate protection, to vapors or mists of the product may cause: Narcotic effect. Others similar effects caused by ingestion. Chronic exposure may cause: Damage to the kidneys and liver. In animals exposed to the product for long periods were observed changes in the reproductive system and teratogenic effects.

Skin- Repeated and/or prolonged exposure can lead to the removal of fats from the skin, causing irritation and dermatitis. It can be absorbed through the skin.

Eyes- It can cause immediate pain, irritation of the conjunctive, of the cornea and production of tears. These effects can continue up to 24 hours.

Information for doctor

There is not known any specific antidote.

Direct the treatment in accordance with the symptoms and clinical conditions of the patient.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

In case of fire, use: Alcohol resistant foam. Water spray.

Carbon dioxide (CO₂). Dry chemical powder.

Specific Hazards

In case of combustion, it may generate carbon monoxide, besides CO₂.

May form explosive mixtures with air above the flash point.

In case of combustion may generate toxic and/or irritant fumes containing: Nitrogen oxides.

Carbon monoxide.

Nitrous gases. Persons who may have inhaled nitrous gases are to be laid down and kept rested. Call a doctor immediately.

.....Safety Data Sheet

Glycol Ether EE

Effective Date: 03/29/2013
Page 4 of 12

5. FIRE-FIGHTING MEASURES (CONTINUED)

Protective measures for fire-fighters

Water jets should not be used directly on igniting products because it may disperse the material and intensify the fire.

Self-contained breathing apparatus and protective clothing are required. Cool the intact fire-exposed containers with water spray and remove them.

NFPA Rating

Health	1
Flammability	2
Instability	0

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Isolate and signalize area.

Keep heat and/or ignition sources away.

Use personal protection equipment as indicated in Section 8, in order to avoid contact with spilled product.

Environmental Precautions

Prevent product from entering into soil and waterways.

Notify the competent authorities if the product has run into drainage systems or watercourse or has contaminated the ground or vegetation.

Methods and materials for containment and cleaning up

Stop if possible.

Contain and dike spilled product with earth or sand. Eliminate ignition or heat sources.

Transfer to proper container.

Collect remnants with an appropriate absorbent material.

Wash the contaminated surface with water, which should be collected for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Use in a well-ventilated area.

Avoid inhalation and contact with eyes, skin or clothing through proper protection. If occurs accidental contact, exposed area should be washed immediately. Emergency eyewashes and showers shall be located in accessible locations. Wash hands and face thoroughly after handling.

Wash contaminated clothing before reuse.

***** Safety Data Sheet

Glycol Ether EE

Effective Date: 03/29/2013
Page 5 of 12

7. HANDLING AND STORAGE (CONTINUED)

Conditions for safe storage

Store in a covered and well-ventilated area, away from sunlight and sources of heat or open flames. Ensure that the storage location has adequate moisture, pressure and temperature. Keep containers tightly closed when not in use.

Tanks should be kept in an inert atmosphere.

Provide proper grounding to prevent static electricity buildup.

Incompatibilities

Avoid contact with: Strong bases.

Strong oxidizing agents.

Compounds with high affinity for hydroxyl groups.

Packaging Material

Recommended: Steel. Polypropylene.

When traces of iron contamination or slight staining is not acceptable, use containers of coated steel or stainless steel.

For joints and fittings, use butyl rubber or polytetrafluoroethylene (PTFE). Unsuitable:

Zinc. Copper. Aluminum.

These metals alloys.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

TLV-TWA (ACGIH) 5 ppm.

Skin - Danger of cutaneous absorption.

PEL-TWA (OSHA) 200 ppm.

Skin - Danger of cutaneous absorption.

TLV-STEL (ACGIH) Not established.

LT(NR15) 78 ppm / 290 mg/m³.

Odor Threshold 1,22 ppm.

IDLH 6000 ppm.

Biological Exposure Indices (ACGIH)

End of shift at end of workweek.

Engineering Control Measures

In closed environments, this product should be handled keeping proper exhaust (general diluter or local exhaust).

*****Safety Data Sheet

Glycol Ether EE

Effective Date: 03/29/2013
Page 6 of 12

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION (CONTINUED)

Individual Protection Measures

Eye Protection

Side shields or wide vision safety goggles.

Skin Protection

PVC apron.

It is recommended to adopt safety boots/shoes.

Hand Protection

Gloves made of: Butyl rubber.

Breathing equipment

In case of emergency or contact with high concentrations of the product, wear an air supplied mask or self contained breathing apparatus.

It is recommended to wear face mask with organic vapors cartridge in case of exposure to vapors/aerosols.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Liquid. Colorless.

Odor and Odor threshold

Characteristic odor. See Section 8 for odor threshold.

pH

Not available.

Melting point/Freezing point

- 76 °C.

Initial Boiling Point and Boiling Range

135 °C.

Flash point

43 °C (closed cup).

Evaporation rate

Not available.

Flammability (solid, gas)

Not available.

Upper/lower flammability or explosive limits

1,7% vol - 15,6% vol (93 °C).

Vapour pressure

0,51 kPa (20 °C).

Vapour density (air = 1)

3,1 (in relation to air).

Relative density (water=1)

930 kg/m³ (20 °C).

Apparent density

Not applicable.

Solubility

Completely soluble in water.

Partition Coefficient n-octanol/water

- 0,43.

Auto-ignition temperature

237 °C.

Decomposition temperature

Not available.

Viscosity

2,1 mPa.s (20 °C).

.....**Safety Data Sheet**

Glycol Ether EE

Effective Date: 03/29/2013
Page 7 of 12

10. STABILITY AND REACTIVITY

Chemical stability

Stable under normal conditions of use and storage.

Reactivity

Possibility of Hazardous Reactions

Possibility of violent reaction or explosion with all incompatible substances.

Conditions to avoid

High temperatures, ignition sources and prolonged exposure to the air.

Incompatible materials

Avoid contact with:

Strong bases.

Strong oxidizing agents.

Compounds with high affinity for hydroxyl groups.

Hazardous decomposition products

In case of combustion, it may generate carbon monoxide, besides CO₂.

In case of combustion may generate toxic and/or irritant fumes containing:

Nitrous gases. Persons who may have inhaled nitrous gases are to be laid down and kept rested. Call a doctor immediately.

Carbon monoxide. Oxides of nitrogen.

Considerations on the use of the product

If it may form peroxides on prolonged contact with air.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Oral

LD₅₀, rat: 2125 mg/kg.

LD₅₀, mouse: 2451 mg/kg. LD₅₀, rabbit: 1275 mg/kg. Moderately toxic.

Inhalation

CL₅₀, 7h, rat: 2000 mg/L.

CL₅₀, 7h, mouse: 1820 ppm. Moderately toxic.

Dermal

Not available.

Skin corrosion/irritation

May be absorbed through the skin.

LD₅₀, rabbit: 3300 mg/kg. LD₅₀, rat: 3900 mg/kg.

.....Safety Data Sheet

Glycol Ether EE

Effective Date: 03/29/2013
Page 8 of 12

11. TOXICOLOGICAL INFORMATION (CONTINUED)

Serious eye damage/eye irritation

Slightly to moderately irritating.
Slight to moderate irritation.

Respiratory or skin sensitization

Not available.

Germ cell mutagenicity

Not available.

Carcinogenicity

Mutagen Test (E.coli) OECD 472: negative.

Repeated exposures of rats, rabbits and guinea pigs to the inhalation of the product in concentrations above 400 ppm showed effects on the respiratory system, blood and urinary system of these animals; administered orally in elevated doses and for up to 13 weeks, showed effect on the blood, endocrine system and the weight of animals of the same species. Other effects observed were alteration in the female menstrual cycle and in the weight of the male testicles. The product did not show mutagenic in the Ames' tests. However, at high concentrations (above 860 ppm) and in elevated doses (23400 mg/kg) showed some mutagenic activity on hamsters and rats. Administered to rats, rabbits and mice through inhalation, in concentrations above 100 ppm, or orally in doses above 500 mg/kg, showed effects on the reproductive system including reduction of female fertility, male sperm morphology, increase of mortality of embryos and delay in the growth of offsprings. There are no records of carcinogenic activity of the product. It is recommended that exposure to the product be minimized, principally at elevated concentrations.

Reproductive toxicity

Not available.

Specific target organ toxicity - Single exposure

Not available.

Specific target organ toxicity - Repeated exposure

Not available.

Aspiration hazard

Not available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

It has low toxicity to aquatic life.

The smell and taste of the product may attract animals with consequent consumption of the released product.

Algae:

EC0, *Desmodesmus subspicatus*: >1.000 mg/L.

*****Safety Data Sheet

Glycol Ether EE

Effective Date: 03/29/2013
Page 9 of 12

12. ECOLOGICAL INFORMATION (CONTINUED)

Invertebrates:

EC50, 48h, Crustacea: 1905 mg/L (EPA/600/4-90/02F).

EC50, 48h, Daphnia magna: > 10.000 mg/L (DIN 38412 - 11).

Fish:

LC0, Leuciscus idus: > 10.000 mg/L.

LC50, 24h, Carassius auratus: > 5000 mg/L (APHA 231). LC50, 48h, Lepomis macrochirus: >10.000 mg/L.

Persistence and Degradability

Slowly biodegradable.

OECD 301: 100% in 14 days.

BOD5: 65% 24 hours (adapted environment).

Bioaccumulative Potential

It is not expected to bioaccumulate in the environment.

Mobility in soil

The product is highly soluble in water.

It is expected to have high mobility in soil.

It is poorly absorbed from the soil or sediment. Volatization coming from dry ground surface is expected.

Other Adverse Effects

This product is expected to exist exclusively as vapor in the atmospheric environment.

Vapor phase is degraded in the atmosphere through the reaction with photochemicals producing hydroxyl radicals.

13. DISPOSAL CONSIDERATIONS

Recommended methods of disposal

Product

The preferred options for disposal include reuse, recycling, co-processing, finding a use for a by-product, incineration or other thermal destruction process at licensed facilities. All procedures must follow specific operation standards in order to reduce health, safety and environmental risks. Perform co-processing, incineration or other thermal destruction process at facilities capable of minimizing or reducing air pollution emissions.

The disposal must comply with federal, state, and local laws and regulations in accordance with the environmental agencies.

Product Remains

Same method as indicated for product.

.....Safety Data Sheet

Glycol Ether EE

Effective Date: 03/29/2013
Page 10 of 12

13. DISPOSAL CONSIDERATIONS (CONTINUED)

Packaging

Do not cut or pierce the packaging, nor do hot work near them.

Do not remove labels until the product has been fully removed and the packaging cleaned. The preferred options for disposal include reuse, recycling or reclamation at licensed facilities. All procedures must follow specific operation standards in order to reduce health, safety and environmental risks.

The disposal must comply with local legislation and in accordance with standards from local environmental agencies.

14. TRANSPORTATION INFORMATION

Land Transport ANTT

UN number	1171
Proper Shipping Name	ETHYLENE GLYCOL MONOETHYL ETHER
Hazard Class	3
Hazard Number	30
Packaging Group	III

Maritime Transport IMDG

ONU Number: 1171; Proper Shipping Name: Ethylene Glycol Monoethyl Ether; Hazard Class: 3; EmS: F-E, S-D; Packaging Group: III.

UN number	1171
Proper Shipping Name	ETHYLENE GLYCOL MONOETHYL ETHER
IMDG Class	3
Packaging Group	III
EmS	F-E, S-D

Air Transport ICAO-TI and IATA-DGR

ONU Number: 1171; Proper Shipping Name: Ethylene Glycol Monoethyl Ether; Hazard Class: 3; Hazard Label: Flammable liquid; Packaging Group: III.

UN number	1171
Proper Shipping Name	ETHYLENE GLYCOL MONOETHYL ETHER
ICAO/IATA Class	3
Label	Flammable liquid
Packaging Group	III

Land Transportation ADR/RID (cross- border)

UN number	1171
Proper Shipping Name	ETHYLENE GLYCOL MONOETHYL ETHER
ADR/RID class	3
Packaging Group	III
Danger code (Kemler)	Not available.
F1	
Restriction Code	D/E

*****Safety Data Sheet

Glycol Ether EE

Effective Date: 03/29/2013
Page 11 of 12

15. REGULATORY INFORMATION

Applicable standards

Resolution 420 / 2004 – Transport Ministry.

IMDG Code - 2010 Edition - IMO (International Maritime Organization).

Dangerous Goods Regulations - 52nd Edition - IATA (International Air Transport Association). Dangerous Goods by Road (ADR) – Available from January 1st, 2011 – Unece (United Nations Economic Commission for Europe).

Brazilian Technical Standards Association (ABNT) – NBR 14725 - Part 1 to 4.

16. OTHER INFORMATION

Remarks

Not available.

Sources

SAX's Dangerous Properties of Industrial Materials - 10th Edition, Ricard J. Lewis, SR John Wiley & Sons, Inc, 2000.

NIOSH Pocket Guide to Chemical Hazards

RTECS - The Registry of Toxic Effects of Chemical Substances.

OSHA - Occupational Safety & Health Administration – U.S. Department of Labor Equistar Chemical, LP, Houston TX (EUA).

2010 TLVs and BEIs – Based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices – ACGIH.

2010 Guide to Occupational Exposure Values – ACGIH. European Chemicals Bureau - <http://ecb.jrc.it>

BRIDIÉ, A.L. Water Research, 13 (7), 1979

a) "The Acute Toxicity of Some Petrochemicals to Goldfish" pg. 623–626;

b) BOD and COD of Some Petrochemicals pg. 627–630.8. Dep. of Health & Human Services–USA, National Toxicity Program.

Spectrum Chemical Mfg. Corp. MSDS 26 Set. 1997 (Cornell University).

CARSON, P.; MUMFORD, C. Hazardous Chemicals Hazardous 2a. Ed. Butterworth Heinemann, 2002.

Equistar Chemicals, LP – Houston, TX MSDS 3383, Rev. 14/Fev./2002. EPA - Environmental Protection Agency.

Oxiteno, Technical Bulletin "Etilglicol – EEMEG" (Ethylglycol – EEMEG) TV02-09/99. Aldrich Chemical Co. Inc. MSDS April 24 1995 (Cornell University).

Abbreviations and acronyms

ACGIH: American Conference of Governmental Industrial Hygienists (USA).

ADR: European agreement concerning the international carriage of dangerous goods by road. CAS: Chemical Abstracts Service (American Chemical Society - EUA).

EC50: Average concentration for 50% of maximum response.

LC: Lethal Concentration - substance concentration in the environment that leads to death after a certain period of exposure.

*****Safety Data Sheet

Glycol Ether EE

Effective Date: 03/29/2013
Page 12 of 12

16. OTHER INFORMATION (CONTINUED)

LC50: Lethal concentration for 50% of the test animals. BOD: Biochemical Oxygen Demand.

LD50: Lethal Dose for 50% of the test animals.

LDLo: Lethal Dose Low - minimal amount of a chemical lethal to animals in testing. EINECS: European Inventory of Existing Commercial Chemical Substances.

GHS: Globally Harmonized System of Classification and Labelling of Chemicals. IARC: International Agency for Research on Cancer.

IATA: International Air Transport Association.

IATA-DGR: Dangerous Goods by Regulations by the IATA ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the ICAO.

IMDG: International Maritime Code for Dangerous Goods.

IDLH - Immediately Dangerous To Life or Health Concentrations. Kow: Octanol/water partition coefficient.

LT (NR 15): Exposure limits of the standard number 15 - Unhealthy Operations and Activities from the Ministry of Labour and Employment of Brazil. LOAEL: Lowest Adverse Effect Level

LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database

NLP: No Longer Polymers.

NIOSH: National Institute for Occupational Safety and Health. NOAEL: No Observed Adverse Effect Level

NTP: National Toxicology Program.

OSHA: Occupational Safety and Health Administration (EUA). PEL-TWA: Exposure Limit Allowed – time-weighted average.

RID: Regulations concerning the international transport of dangerous goods by rail. TLV-STEL: Tolerance Limit - short period of time (15 minutes, maximum).

TLV-TWA: Tolerance Limit – time weighted average.

WGK: Wassergefährdungsklasse (Germany) - Water Hazard Class.

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