

Safety Data Sheet

acc. to OSHA HCS

Printing date 01/22/2014

Reviewed on 11/09/2007

1 Identification

Product identifier
Product name: Ethylene glycol
Stock number: 31332

CAS Number:

107-21-1

EC number:

203-473-3

Index number:

603-027-00-1

Relevant identified uses of the substance or mixture and uses advised against.
Identified use: SU24 Scientific research and development

Details of the supplier of the safety data sheet
Manufacturer/Supplier:

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency telephone number:

During normal hours the Health, Safety and Environmental Department at (800) 343-0660. After normal hours call Carechem 24 at (866) 928-0789.

2 Hazard(s) identification

Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008

The substance is not classified as hazardous to health or the environment according to the CLP regulation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC


Xn; Harmful

R22: Harmful if swallowed.

Information concerning particular hazards for human and environment: Not applicable

Hazards not otherwise classified No information known.

Label elements
Labelling according to Regulation (EC) No 1272/2008 Not applicable

Hazard pictograms Not applicable

Signal word Not applicable

Hazard statements Not applicable

WHMIS classification

D1B - Toxic material causing immediate and serious toxic effects


Classification system
HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)

HEALTH	1
FIRE	1
REACTIVITY	1

Health (acute effects) = 1

Flammability = 1

Physical Hazard = 1

Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances

CAS# Description:

107-21-1 Ethylene glycol

Identification number(s):
EC number: 203-473-3

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4 First-aid measures**Description of first aid measures****After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Seek medical treatment.

Information for doctor**Most important symptoms and effects, both acute and delayed**

No further relevant information available.

Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5 Fire-fighting measures**Extinguishing media****Suitable extinguishing agents**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture

If this product is involved in a fire, the following can be released:

Carbon monoxide and carbon dioxide

Advice for firefighters**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Environmental precautions:

Do not allow material to be released to the environment without proper governmental permits.

Do not allow product to reach sewage system or any water course.

Do not allow to penetrate the ground/soil.

Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Prevention of secondary hazards: No special measures required.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Precautions for safe handling**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Information about protection against explosions and fires: No information known.

Conditions for safe storage, including any incompatibilities**Storage**

Requirements to be met by storerooms and receptacles: No special requirements.

Information about storage in one common storage facility:

Store away from oxidizing agents.

Store away from strong bases.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

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Specific end use(s) No further relevant information available.**8 Exposure controls/personal protection****Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters**Components with limit values that require monitoring at the workplace:**

Ethylene glycol

	ppm
Australia TWA	24
ACGIH TLV	100
Austria MAK	10 (skin)
Belgium	50-STEEL
Denmark TWA	50
Finland TWA	10 mg/m ³ ; 20 mg/m ³ -STEEL
France VLE	50
Germany MAK	10 (skin)
Hungary	50 mg/m ³ -STEEL (skin)
Korea TLV	100
Netherlands MAC-TGG	50
Norway TWA	25
Polnd TWA	15 mg/m ³ ; 50 mg/m ³ -STEEL
Russia	5 mg/m ³ -STEEL
Sweden NGV	10; 20-KTV (skin)
Switzerland MAK-W	50
United Kingdom TWA	60 mg/m ³ ; 125 mg/m ³ -STEEL (vapor)

107-21-1 Ethylene glycol (100.0%)

TLV (USA)	Ceiling limit value: 100 mg/m ³ H
EL (Canada)	Short-term value: C 100* 20** mg/m ³ , C 50*** ppm Long-term value: 10** mg/m ³ *Aerosol; **Particulate; ***Vapour

Additional information: No data**Exposure controls****Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Maintain an ergonomically appropriate working environment.

Breathing equipment: Use suitable respirator when high concentrations are present.**Protection of hands:**

Impervious gloves

Check protective gloves prior to each use for their proper condition.

The selection of suitable gloves not only depends on the material, but also on quality.

Quality will vary from manufacturer to manufacturer.

Eye protection: Safety glasses**Body protection:** Protective work clothing.**9 Physical and chemical properties****Information on basic physical and chemical properties****General Information****Appearance:**

Form:	Powder, granules or beads
Color:	Colorless
Odor:	Sweet
Odor threshold:	Not determined.

pH-value: Not determined.**Change in condition**

Melting point/Melting range:	-12.4 °C (10 °F)
Boiling point/Boiling range:	196-198 °C (385-388 °F)
Sublimation temperature / start:	Not determined

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Flash point:	110 °C (230 °F)
Flammability (solid, gaseous)	Not determined.
Ignition temperature:	410 °C (770 °F)
Decomposition temperature:	Not determined
Auto igniting:	Not determined.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	3.2 Vol %
Upper:	53 Vol %
Vapor pressure at 20 °C (68 °F):	0.08 hPa
Density at 20 °C (68 °F):	1.1088 g/cm ³ (9.253 lbs/gal)
Relative density	Not determined.
Vapor density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	Fully miscible
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic at 20 °C (68 °F):	21 mPas
kinematic:	Not determined.
Other information	No further relevant information available.

10 Stability and reactivity

Reactivity No information known.
Chemical stability Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided:
 Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions No dangerous reactions known
Incompatible materials:
 Oxidizing agents
 Bases
Hazardous decomposition products: Carbon monoxide and carbon dioxide

11 Toxicological information

Information on toxicological effects
Acute toxicity: Harmful if swallowed.

LD/LC50 values that are relevant for classification:

Oral	LD50	5840 mg/kg (rat)
Dermal	LD50	9530 mg/kg (rabbit)

Skin irritation or corrosion: Irritant to skin and mucous membranes.
Eye irritation or corrosion: Irritating effect.
Sensitization: No sensitizing effects known.
Germ cell mutagenicity: No effects known.
Carcinogenicity:
 ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.
Reproductive toxicity: No effects known.
Specific target organ system toxicity - repeated exposure: No effects known.
Specific target organ system toxicity - single exposure: No effects known.
Aspiration hazard: No effects known.
Other information (about experimental toxicology):
 Mutagenic effects have been observed on tests with human lymphocytes.
 Reproductive effects have been observed on tests with laboratory animals.
 Mutagenic effects have been observed on tests with laboratory animals.
Subacute to chronic toxicity:
 Ethylene glycol may cause central nervous system effects, stimulation followed by depression. Causes kidney damage which can be fatal. Exposure may also result in damage to the eyes, cardiovascular system, or liver. Animal tests indicate a possible risk of reproductive disorders and fetal malformation.
Subacute to chronic toxicity:
 Brain and Coverings - increased intracranial pressure.
 The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:
 Behavioral - alteration of classical conditioning.
 Behavioral - general anesthetic.
 Behavioral - convulsions or effect on seizure threshold.

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Behavioral - excitement.
 Behavioral - irritability.
 Behavioral - somnolence (general depressed activity).
 Behavioral - muscle weakness.
 Behavioral - headache.
 Behavioral - fluid intake.
 Behavioral - coma.
 Behavioral - tetany.
 Behavioral - tremor.
 Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - transaminases.
 Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - dehydrogenases.
 Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - multiple enzyme effects.
 Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - phosphatases.
 Blood - changes in serum composition (e.g. TP, bilirubin, cholesterol).
 Blood - changes in spleen.
 Blood - other changes.
 Blood - changes in bone marrow (not otherwise specified).
 Brain and Coverings - other degenerative changes.
 Brain and Coverings - recordings from specific areas of CNS.
 Brain and Coverings - changes in brain weight.
 Cardiac - change in rate.
 Cardiac - other changes.
 Gastrointestinal - ulceration or bleeding from small intestine.
 Gastrointestinal - nausea or vomiting.
 Gastrointestinal - other changes.
 Gastrointestinal - hypermotility, diarrhea.
 Kidney, Ureter, Bladder - other changes in urine composition.
 Kidney, Ureter, Bladder - renal function tests depressed.
 Kidney, Ureter, Bladder - changes in both tubules and glomeruli.
 Kidney, Ureter, Bladder - proteinuria.
 Kidney, Ureter, Bladder - changes in tubules (including acute renal failure, acute tubular necrosis).
 Kidney, Ureter, Bladder - other changes.
 Kidney, Ureter, Bladder - changes in bladder weight.
 Kidney, Ureter, Bladder - urine volume decreased.
 Liver - other changes.
 Liver - liver function tests impaired.
 Liver - hepatitis (hepatocellular necrosis), zonal
 Liver - changes in liver weight.
 Lungs, Thorax, or Respiration - acute pulmonary edema.
 Lungs, Thorax, or Respiration - chronic pulmonary edema.
 Lungs, Thorax, or Respiration - other changes.
 Lung, Thorax, or Respiration - cough.
 Lungs, Thorax, or Respiration - respiratory stimulation.
 Nutritional and Gross Metabolic - metabolic acidosis.
 Nutritional and Gross Metabolic - changes in phosphorus.
 Nutritional and Gross Metabolic - changes in calcium.
 Nutritional and Gross Metabolic - weight loss or decreased weight gain.
 Peripheral Nerve and Sensation - sensory change involving peripheral nerve.
 Related to Chronic Data - death.
 Reproductive - Paternal Effects - testes, epididymis, sperm duct.
 Reproductive - Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).
 Reproductive - Specific Developmental Abnormalities - other developmental abnormalities.
 Reproductive - Effects on Newborn - growth statistics (e.g.%, reduced weight gain).
 Reproductive - Effects on Newborn - live birth index (measured after birth)
 Reproductive - Specific Developmental Abnormalities - craniofacial (including nose and tongue).
 Reproductive - Specific Developmental Abnormalities - musculoskeletal system.
 Reproductive - Effects on Newborn - delayed effects.
 Reproductive - Effects on Newborn - stillbirth.
 Reproductive - Fertility - pre-implantation mortality (e.g. reduction in number of implants per female; total number of implants per corpora lutea)
 Reproductive - Fertility - post-implantation mortality (e.g. dead/or resorbed implants per total number of implants).
 Reproductive - Effects on Newborn - viability index (e.g., # alive at day 4 per # born live).
 Reproductive - Fertility - other measures of fertility.
 Reproductive - Effects on Newborn - sex ratio.
 Reproductive - Specific Developmental Abnormalities - skin and skin appendages.
 Reproductive - Specific Developmental Abnormalities - blood and lymphatic systems (including spleen and marrow).

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Reproductive - Maternal Effects - uterus, cervix, vagina.
 Reproductive - Maternal Effects - other effects.
 Reproductive - Effects on embryo or fetus - maternal/fetal exchange.
 Reproductive - Fertility - litter size (e.g. # fetuses per litter; measured before birth).
 Sense Organs and Special Senses (Eye) - conjunctive irritation.
 Sense Organs and Special Senses (Eye) - lacrimation.
 Sense Organs and Special Senses (Eye) - corneal damage.
 Sense Organs and Special Senses (Eye) - effect, not otherwise specified.
 Sense Organs and Special Senses (Eye) - mydriasis (pupillary dilation).
 Vascular - BP lowering not characterized in autonomic section.
 Vascular - other changes.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

12 Ecological information**Toxicity**

Aquatic toxicity: No further relevant information available.

Persistence and degradability No further relevant information available.

Behavior in environmental systems:

Bioaccumulative potential No further relevant information available.

Mobility in soil No further relevant information available.

Additional ecological information:**General notes:**

Do not allow material to be released to the environment without proper governmental permits.
 Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Avoid transfer into the environment.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects No further relevant information available.

13 Disposal considerations**Waste treatment methods**

Recommendation Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

Not a hazardous material for transportation.

UN-Number DOT, ADR, IMDG, IATA	None
UN proper shipping name DOT, ADR, IMDG, IATA	None
Transport hazard class(es) DOT, ADR, IMDG, IATA Class	None
Packing group DOT, ADR, IMDG, IATA	None
Environmental hazards:	Not applicable.
Special precautions for user	Not applicable.
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	Not dangerous according to the above specifications.
DOT	
Hazardous substance:	5000 lbs, 2270 kg
Marine Pollutant (DOT):	No

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15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

SARA Section 313 (specific toxic chemical listings)

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California Proposition 65

Prop 65 - Chemicals known to cause cancer Substance is not listed.

Prop 65 - Developmental toxicity Substance is not listed.

Prop 65 - Developmental toxicity, female Substance is not listed.

Prop 65 - Developmental toxicity, male Substance is not listed.

Information about limitation of use:

For use only by technically qualified individuals.

This substance is subject to a Significant New Use Rule (SNUR) promulgated under Section 5(a)(2) of the Toxic Substances Control Act (TSCA). See 40 CFR 721. This product is being sold for research and development use.

This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

Other regulations, limitations and prohibitive regulations

Substances of very high concern (SVHC) according to REACH, Article 57

Substance is not listed.

REACH - Pre-registered substances Substance is listed.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Health, Safety and Environmental Department.

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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