

MATERIAL SAFETY DATA SHEET

Section 1 - Chemical Product and Company Identification

MSDS Name: Ethylene-d4 glycol
Catalog Numbers: AC300700000, AC300700010, AC321370000, AC321370010
Synonyms: Deuterated ethylene glycol.
Company Identification: Acros Organics BVBA
Janssen Pharmaceuticaalaa 3a
2440 Geel, Belgium
Company Identification: (USA) Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410
For information in the US, call: 800-ACROS-01
For information in Europe, call: +32 14 57 52 11
Emergency Number, Europe: +32 14 57 52 99
Emergency Number US: 201-796-7100
CHEMTREC Phone Number, US: 800-424-9300
CHEMTREC Phone Number, Europe: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#: 2219-51-4
Chemical Name: Ethylene-d4 glycol
%: 99
EINECS#: 218-730-5
Hazard Symbols:
Risk Phrases:

Text for R-phrases: see Section 16

Hazard Symbols: XN



Risk Phrases: 22

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Warning! Causes eye irritation. Hygroscopic (absorbs moisture from the air). May be harmful if swallowed. May cause kidney damage. May cause central nervous system effects. Target Organs: Kidneys, central nervous system, respiratory system, eyes.

Potential Health Effects

Eye: May cause moderate eye irritation.
Skin: Low hazard for usual industrial handling. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts.
Ingestion: The lethal dose in adult humans for ethylene glycol is about 100 ml (1/3 cup). Swallowing may cause nausea, vomiting or diarrhea. Excessive exposure may cause CNS effects, cardiopulmonary effects (metabolic acidosis), and kidney failure.
Inhalation: If ethylene glycol is heated or misted in work areas that are poorly ventilated, vapor/mist may accumulate and cause respiratory irritation and symptoms such as headache and

nausea. Material has a very low vapor pressure at room temperature, so inhalation exposures are not expected unless material is heated or misted.

Chronic: May cause kidney injury. Repeated excessive exposure to ethylene glycol may cause irritation of the upper respiratory tract. In humans, effects have been reported on the central nervous system, including nystagmus (involuntary, rapid, rhythmic movement of the eyeball).

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

Skin: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician:

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing Media: Use extinguishing media most appropriate for the surrounding fire.

Autoignition Temperature: 410 deg C (770.00 deg F)

Flash Point: 111 deg C (231.80 deg F)

Explosion Limits: 3.20 vol %

Lower:

Explosion Limits: 15.30 vol %

Upper:

NFPA Rating: health: 2; flammability: 1; instability: 0;

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Avoid breathing spray or mist.

Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Store protected from moisture.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits +-----+-----+-----+
+-----+-----+-----+

Chemical Name Final PELs	ACGIH	NIOSH	OSHA -
Ethylene glycol listed	100 mg/m3 Ceiling (aerosol only)	none listed	none
Ethylene-d4 glycol listed	none listed	none listed	none

OSHA Vacated PELs: Ethylene glycol: None listed Ethylene-d4 glycol: None listed

Personal Protective Equipment

- Eyes:** Wear chemical splash goggles.
- Skin:** Glove protection is not normally required.
- Clothing:** Protective garments not normally required.
- Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

- Physical State:** Liquid
- Color:** colorless
- Odor:** odorless
- pH:** Not available
- Vapor Pressure:** .05 mm Hg @ 20C
- Vapor Density:** 2.1 (air=1)
- Evaporation Rate:** Not available
- Viscosity:** mPas 20 deg C
- Boiling Point:** 86-87 deg C @ 8mm Hg
- Freezing/Melting Point:** -13 deg C (8.60°F)
- Decomposition Temperature:** Not available
- Solubility in water:** soluble in water
- Specific Gravity/Density:** 1.1890g/cm3
- Molecular Formula:** C2H2D4O2
- Molecular Weight:** 66.09

Section 10 - Stability and Reactivity

- Chemical Stability:** Stable at room temperature in closed containers under normal storage and handling conditions. Hygroscopic: absorbs moisture or water from the air.
- Conditions to Avoid:** Moisture, excess heat.
- Incompatibilities with Other Materials:** Strong oxidizing agents, strong acids, isocyanates, aliphatic amines, caustics.
- Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide.
- Hazardous Polymerization:** Has not been reported.

Section 11 - Toxicological Information

- RTECS#:** CAS# 107-21-1: KW2975000
CAS# 2219-51-4: None listed
- LD50/LC50:** RTECS:
CAS# 107-21-1: Draize test, rabbit, eye: 500 mg/24H Mild;

Draize test, rabbit, eye: 100 mg/1H Mild;
Draize test, rabbit, eye: 0.012 ppm/3D;
Draize test, rabbit, eye: 1440 mg/6H Moderate;
Oral, mouse: LD50 = 5500 mg/kg;
Oral, rat: LD50 = 4700 mg/kg;
Skin, rabbit: LD50 = 9530 uL/kg;

RTECS:

CAS# 2219-51-4:

Carcinogenicity: Ethylene glycol - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Ethylene-d4 glycol - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: Not available

Teratogenicity: An expert panel convened by the NTP's Center for the Evaluation of Risks to Human Reproduction concluded 2/13/03 that developmental and reproductive risks stemming from exposure to the chemicals propylene glycol and ethylene glycol are negligible.

Reproductive: Not available

Neurotoxicity: Not available

Mutagenicity: Not available

Other: Not available

Section 12 - Ecological Information

Ecotoxicity: Fish: Rainbow trout: LC50 = 41000 mg/L; 96 Hr.; Unspecified
Fish: Bluegill/Sunfish: LC50 = 27500-41000 mg/L; 96 Hr.; Unspecified
Fish: Goldfish: LC50 = 27500-41000 mg/L; 96 Hr.; Unspecified
Water flea LC50 = 46300 mg/L; 48 Hr.; Unspecified
Bacteria: Phytobacterium phosphoreum: EC50 = 620 mg/L; 30 minutes; Microtox test

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification. RCRA P-Series: None listed. RCRA U-Series: None listed.

Section 14 - Transport Information

US DOT

Shipping Name: Not regulated

Hazard Class:

UN Number:

Packing Group:

Canada TDG

Shipping Name: Not regulated as a hazardous material

Hazard Class:

UN Number:

Packing Group:

USA RQ: CAS# 107-21-1: 5000 lb final RQ; 2270 kg final RQ

Section 15 - Regulatory Information

US Federal

TSCA

CAS# 107-21-1 is listed on the TSCA Inventory.

CAS# 2219-51-4 is not listed on the TSCA Inventory. It is for research and development use only.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs CAS# 107-21-1: 5000 lb final RQ; 2270 kg final RQ
SARA Section 302 Extremely Hazardous Substances None of the chemicals in this product have a TPQ.
SARA Codes Section 313 CAS # 107-21-1: acute, chronic.
This chemical is not at a high enough concentration to be reportable under Section 313. No chemicals are reportable under Section 313.
Clean Air Act: CAS# 107-21-1 is listed as a hazardous air pollutant (HAP). This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.
Clean Water Act: None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA: STATE Ethylene glycol can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts. Ethylene-d4 glycol is not present on state lists from CA, PA, MN, MA, FL, or NJ.
California Prop 65
California No Significant Risk Level: None of the chemicals in this product are listed.
European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: XN
Risk Phrases:
R 22 Harmful if swallowed.

Safety Phrases:

WGK (Water Danger/Protection)
CAS# 107-21-1: 0
CAS# 2219-51-4: Not available

Canada
CAS# 107-21-1 is listed on Canada's DSL List
Canadian WHMIS Classifications: D2B
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.
CAS# 107-21-1 is listed on Canada's Ingredient Disclosure List
CAS# 2219-51-4 is not listed on Canada's Ingredient Disclosure List.

Section 16 - Other Information

MSDS Creation Date: 6/19/1998

Revision #6 Date: 6/16/2005

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.