Material Safety Data Sheet
(15310-01 and 15310-06)

Section 1: Chemical Product and Company Identification

Product Name: Ethylene Glycol Monoethyl Ether

Catalog Number: 15310-01 and 15310-06

CAS#: 110-80-5

Contact Information:
Electron Microscopy Sciences
1560 Industry Road
Hatfield, PA 19440
1-215-412-8400 (phone)
1-800-523-5874 (toll-free)
1-215-412-8450 (fax)
Order Online: emsdiasum.com

CHEMTREC (24-Hour Emergency Telephone), call: 1-800-424-9300

Section 2: Composition and Information on Ingredients

CAS#	Chemical Name	Percent
110-80-5	Ethylene Glycol monoethyl ether	100

Section 3: Hazards Identification

Emergency Overview

Appearance: Clear, colorless liquid

Warning! Flammable liquid and vapor. May cause harm to the unborn child. May cause harmful reproductive effects in men. Causes eye irritation. May be harmful if swallowed, inhaled, or absorbed through the skin. This material has been reported to the susceptible to autoxidation and therefore should be classified as peroxidizable. May form explosive peroxides. May cause central nervous system depression.

Target Organs: Blood, kidneys, central nervous system, liver, male reproductive system.

Potential Health Effects

Eye: Causes eye irritation. Caused moderate eye irritation in a standard Draize test.

Skin: May cause mild skin irritation. Prolonged or repeated contact may cause irritation and dermatitis. Readily absorbed through the skin. If absorbed, causes symptoms similar to those of ingestion. May be harmful if absorbed through the skin. Not sensitizing in guinea pig maximization test.

Ingestion: May cause irritation of the digestive tract. May cause liver and kidney damage. Exposure may cause anemia and other blood abnormalities. May be harmful if swallowed. May cause central nervous system depression.

Inhalation: May cause respiratory tract irritation. Inhalation overexposure may lead to central nervous system depression, producing effects such as dizziness, headache, confusion, incoordination, nausea, weakness, and loss of consciousness. Extreme exposures may cause other CNS effects including death.

Chronic: 2-Ethyoxyethanol may be a teratogen in humans since it has been shown to be a teratogen in animals. It may damage the testes and decrease fertility in males. Effects on liver and kidneys, stomach ulcers, blood changes and reduced growth seen at high doses. In humans, the main metabolite is ethoxyacetic acid, which is excreted in the urine, but is still detectable in the body 12 days after the exposure.

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: Treat symptomatically and supportively.

Section 5: Fire and Explosion Data

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor. Containers may explode when heated. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.
Extinguishing Media: Use dry chemical, carbon dioxide, or appropriate foam. Solid streams of water may be ineffective and spread material.
Auto-Ignition Temperature: 235ºC (455ºF)
Flash Point: 43ºC (109.4ºF)
NFPA Rating: Health – 2 Flammability – 2 Instability -0
Explosion Limits: Lower: 1.7% Upper: 15.6%

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. Remove all sources of ignition. Provide ventilation. Approach spill from upwind.

Section 7 : Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Avoid breathing vapor or mist.

Storage: Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables area. Do not store in aluminum containers. Store protected from light and air. Containers should be dated when opened and tested periodically for the presence of peroxides. Should crystals form in a peroxidizable liquid, peroxidation may have occurred and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals. All peroxidizable substances should be stored away from heat and light and be protected from ignition sources.

Section 8: Exposure Controls/Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Exposure Limits:

Chemical Name	ACGIH	NIOSH	OSHA
Ethylene Glycol monoethyl ether	5 ppm TWA; Skin – potential significant contribution to overall exposure	0.5 ppm TWA; 1.8 mg/m3 TWA 500 ppm IDLH	200 ppm TWA; 740 mg/m3 TWA

OSHA Vacated PELs: Ethylene glycol monoethyl ether: 200 ppm TWA: 740 mg/m3 TWA

Personal Protective Equipment
Eyes: Wear chemical splash goggles.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
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
Odor: Mild, sweet odor
Vapor Pressure: 3.8 mm Hg @20ºC
Evaporation Rate: 0.41 (BuOAc=1)
Boiling Point: 135ºC
Decomposition Temperature: Not available
Specific Gravity/Density: 0.93
Molecular Weight: 90.12

Color: clear, colorless
pH: Not available
Vapor Density: 3.1 (Air=1)
Viscosity: 2.1 cps @ 20ºC\
Freezing/Melting Point: -90ºC
Solubility in Water: Soluble
Molecular Formula: C4H10O2

Section 10: Stability and Reactivity Data

Chemical Stability: Under normal storage conditions, peroxidizable compounds can form and accumulate peroxides which may explode when subjected to heat or shock. This material is most hazardous when peroxide levels are concentrated by distillation or evaporation.

Conditions to Avoid: Light, ignition sources, excess heat, exposure to flame, prolonged exposure to air.

Incompatibilities with Other Materials: Strong oxidizing agents, strong acids, strong bases, aluminum.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, peroxides.

Hazardous Polymerization: Will not occur.

Section 11: Toxicological Information

RTECS:

CAS# 110-80-5: kk8050000

LD50/LC50:

CAS# 110-80-5:

Draize test, rabbit, eye: 50 mg Moderate;
Draize test, rabbit, eye: 500 mg/24H Mild;
Inhalation, mouse: LC50 = 1820 ppm/7H;
Inhalation, rat LC50 = 2000 ppm/7H;
Oral, mouse: LD50 = 2451 mg/kg;
Oral, mouse LD50 = 4000 mg/kg;
Oral, rabbit: LD50 = 1275 mg/kg;
Oral rabbit: LD50 = 1275 mg/kg,
Oral, rat: LD50 = 2125 mg/kg;
Oral, rat: LD50 = 2125 mg/kg;
Skin, rabbit: LD50 = 3.6 mg/kg;
Skin, rat: LD50 = 3900 mg/kg

Carcinogencity:

CAS# 110-80-5: Not listed by ACGIH, IARC, or NTP.
California: None

Epidemiology: No information available.

Teratogenicity: Has caused fetotoxicity, embryotoxicity and teratogenicity in animals at doses which are not harmful to the mothers.

Reproductive: Caused harmful effects to male fertility in animals. Limited human studies have indicated that 2-EE can cause reproductive effects in men.

Mutagenicity: No information available.

Neurotoxicity: See actual entry in RTECS for complete information.

Section 12: Ecological Information

Ecotoxicity: Fish: Bluegill /Sunfish: LC50=>10000 mg/L; 96 Hr; Unspecified Fish: Bluegill/Sunfish: LC50 = 5400 mg/l; 24 Hr: Modified ASTM D1345 Water flea Dauphnia: EC50 = 430 mg/L; 30 minutes; Microtox test: No data available.

Environmental: No information available.

Physical: No information available.

Other: An estimated BCF value of 0.34 was calculated for ethylene glycol monoethyl ether, using an experienced log Kow of -0.32 and a recommended regression-derived equation. According to a classification scheme, this BCF value suggests that bioconcentration in aquatic organisms is low.

Section 13: Disposal Considerations

Dispose of in accordance with Federal, State, and local regulations.

Section 14: Transport Information

USDOT
Shipping Name: Ethylene glycol monoethyl ether
Hazard Class: 3
UN Number: UN1171
Packing Group: III

Section 15: Other Regulatory Information

US Federal

TSCA:
CAS# 110-80-5 is listed on the TSCA inventory.

SARA Reportable Quantities (RQ):
CAS# 110-80-5: 1000 lb. final RQ; 454 kg final RQ

CERCLA/SARA Section 313: This material contains Ethylene glycol monoethyl ether (CAS# 110-80-5), >99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR.

OSHA – Highly Hazardous: None of the composition are on this list.

US State

State Right-to-Know: CAS# 110-80-5 can be found on the following state right-to-know lists: California; New Jersey, Pennsylvania, Minnesota, and Massachusetts.

California Regulations: None

European/International Regulations

Canadian DSL/NDSL: CAS# 110-80-5 is listed on Canada's DSL List.

Canada Ingredient Disclosure List: CAS# 110-80-5 is listed on the Canadian Ingredient Disclosure List.

Section 16: Other Information:

Last Updated, Verified and Printed: June 20, 2011

The information above is believed to be accurate and represents the best information currently available to us. However, we make no 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 Electron Microscopy Sciences 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 Electron Microscopy Sciences has been advised of the possibility of such damages.