



MATERIAL SAFETY DATA SHEETS

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ETHYLENE GLYCOL MONOMETHYL ETHER ACETATE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Ethylene Glycol Monomethyl Ether Acetate

Synonyms: 2-Methoxyethyl Acetate

Chemical Formula: C₅H₁₀O₃

Recommended Use: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

2. COMPOSITION AND INFORMATION ON INGREDIENTS

| <u>Ingredient</u> | <u>CAS No</u> | <u>Percent</u> | <u>Hazardous</u> |
|--|---------------|----------------|------------------|
| Ethylene Glycol Monomethyl Ether Acetate | 110-49-6 | >99% | Yes |

3. HAZARDS IDENTIFICATION

WARNING! FLAMMABLE LIQUID AND VAPOR. CAUSES EYE IRRITATION. MAY HAVE REPRODUCTIVE EFFECTS AND MAY CAUSE HARM TO UNBORN CHILDREN. MAY BE HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH THE SKIN. MAY CAUSE SKIN AND RESPIRATORY TRACT IRRITATION. MAY CAUSE KIDNEY DAMAGE, BLOOD ABNORMALITIES, AND CENTRAL NERVOUS SYSTEM EFFECTS. TARGET ORGANS: KIDNEYS, CENTRAL NERVOUS SYSTEM, RESPIRATORY SYSTEM, AND EYES.

Acute Exposure Hazards:

Inhalation Hazard: May cause respiratory tract irritation. May cause effects similar to those for ingestion. May cause narcotic effects in high concentration. Aspiration may lead to pulmonary edema. May be harmful if inhaled and may cause burning sensation in the chest. Vapors may cause dizziness or suffocation.

Ingestion Hazard: May cause gastrointestinal irritation with nausea, vomiting, or diarrhea. May be harmful if swallowed. May cause polyuria, diminished urine output in relation to fluid intake, and complete suppression of urination. Lesions may appear in the brain, lungs, liver, meninges, and heart. Ingestion of large amounts may cause central nervous system depression.

Skin Contact Hazard: May be absorbed through the skin in harmful amounts. May cause irritation and dermatitis. May cause cyanosis of the extremities.

Eye Contact Hazard: Causes eye irritation. May cause chemical conjunctivitis or corneal damage.

Chronic Exposure Hazards: Chronic inhalation and ingestion may cause effects similar to acute inhalation and ingestion. Prolonged or repeated exposure may cause adverse reproductive effects.

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. Do not use mouth-to-mouth resuscitation.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward. Get medical aid immediately.

Skin Contact: Remove any contaminated clothing. Flush skin with water for at least 15 minutes. Get medical attention.

Eye Contact: Check for and remove contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention.

Notes to Physician: Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flammability: Flammable liquid and vapor.

Auto-ignition Temperature: 394° C (741° F)

Flash Point: 45° C (113° F)

Flammable Limits: Lower Limit – 1.7 vol %, Upper Limit – 8.2 vol %

Products of Combustion: May decompose into irritating and toxic gases under fire conditions (carbon monoxide, carbon dioxide).

Specific Fire Hazards: As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Vapors can travel to a source of ignition and flash back. Liquid will burn if involved in fire. Containers may explode in heat of fire. Use water spray to keep fire exposed containers cool. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Vapors are heavier than air and can spread along ground and collect in low or confined spaces.

Specific Explosion Hazards: Vapors may form an explosive mixture with air.

Fire Fighting Media: For small fires, use dry chemical, carbon dioxide, water spray, or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Water may be ineffective. *Do not* use straight streams of water.

Special Remarks: None

6. ACCIDENTAL RELEASE MEASURES

Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Use spark-proof tools. Provide ventilation to the affected area and remove all ignition sources. A vapor suppressing foam may be used to reduce vapors. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Always use proper personal protective equipment as described in section 8.

7. HANDLING AND STORAGE

Precautions: Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Ground or bond containers before transferring material. Empty containers contain product residue (liquid and vapor) and can be dangerous. Use with adequate ventilation. Avoid breathing vapor or mist.

Storage: Store away from ignition sources. Keep in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protection: Wear chemical splash goggles. Use butyl rubber gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Exposure Limits:

ACGIH – 0.1 ppm TWA, Skin – potential significant contribution to overall exposure by the subcutaneous route.

NIOSH – 0.1 ppm TWA; 0.5 mg/m³ TWA; 200 ppm IDLH

OSHA Final PELs – 25 ppm TWA; 120 mg/m³ TWA

OSHA Vacated PELs: 25 ppm TWA; 120 mg/m³ TWA

Eye Protection: Wear protective chemical goggles or other appropriate eye protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Clear, colorless liquid.

Odor: Pleasant ester-like odor

Odor Threshold: NA

Taste: Not available

Molecular Formula: C₅H₁₀O₃

Molecular Weight: 118.13

pH: Not available

Boiling Point: 145° C @ 760 mm Hg

Freezing/Melting Point: -65° C

Decomposition Temperature: Not available.

Specific Gravity: 1.009 g/cm³

Vapor Density (Air=1): 4.1

Vapor Pressure: 2 mm Hg.

Evaporation Rate (Butyl acetate = 1): Not available.

Viscosity: 1.14 mPas @ 20° C.

Solubility: Miscible

10. STABILITY AND REACTIVITY

Stability: Stable under normal temperature and pressure.

Conditions to Avoid: Incompatible materials, ignition sources, excess heat.

Incompatibility With Various Substances: Strong oxidizers.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, irritating and toxic fumes and gasses.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact

Animal Toxicity:

Draize test, rabbit eye: 218 mg Mild;

Oral, mouse: LD50 = 3100 mg/kg;

Oral, rat: LD50 = 2900 mg/kg;

Skin, rabbit: LD50 = 5250 ug/kg;

Carcinogenicity: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65

Epidemiology: Experimental reproductive effects have been reported.

Teratogenicity: No information available.

Reproductive Effects: Adverse effects have been observed in experimental animals.

Mutagenicity: No information available.

Neurotoxicity: No information available.
Other Studies: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity: No information available.
Environmental Fate: No information available.
Physical: No information available.

13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements. This material is neither a "P" listed nor a "U" listed waste under 40 CFR 261.33.

14. TRANSPORT INFORMATION

US DOT

Proper Shipping Name: Ethylene Glycol Monomethyl Ether Acetate
Hazard Class: 3
UN Number: UN1189
Packing Group: III

Canada TDG

Proper Shipping Name: Ethylene Glycol Monomethyl Ether Acetate
Hazard Class: 3
UN Number: UN1189
Packing Group: III
Additional Information: Not available

International (Water, I.M.O.)

Proper Shipping Name: Ethylene Glycol Monomethyl Ether Acetate
Hazard Class: 3
UN Number: UN1189
Packing Group: III

International (Air, I.C.A.O.)

Proper Shipping Name: Ethylene Glycol Monomethyl Ether Acetate
Hazard Class: 3
UN Number: UN1189
Packing Group: III

15. REGULATORY INFORMATION

US Federal Regulations

TSCA: CAS# 110-49-6 is listed on the TSCA Inventory.

Health and Safety Reporting List: Not listed.

Chemical Test Rules: Not listed.

Section 12b: 1% de minimis concentration.

TSCA Significant New Use Rule: This product is for research and development only. It is subject to an SNUR which has specific requirements and restrictions. The specific citation is 40 CFR 721.10001.

CERCLA Hazardous Substances: CAS# 110-49-6: Not listed

SARA Section 302: Does not have a TPQ

SARA Codes: CAS# 110-49-6 – immediate, delayed

Section 313: Ethylene glycol Monomethyl ether acetate (CAS# 110-49-6) is subject to SARA Title III Section 313 40 CFR 373 reporting requirements.

Clean Air Act: CAS# 110-49-6 (listed as glycol ethers) is listed as a hazardous air pollutant (HAP). It is not a Class 1 Ozone Depleter. It is not a Class 2 Ozone Depleter.

Clean Water Act: CAS# 110-49-6 is not listed as a Hazardous Substance. It is not a Priority Pollutant. It is not a Toxic Pollutant.

OSHA: Not considered highly hazardous by OSHA.

US State Regulations:

CAS# 110-49-6 is on the following state right-to-know lists: California, New Jersey, Pennsylvania, Minnesota, and Massachusetts

California Prop 65: In accordance with the California Safe Drinking Water Act: This product contains 2-Methoxyethyl acetate, a chemical known to the state of California to cause male reproductive toxicity.

California No Significant Risk Level: Not listed

Canada:

DSL/NDL: CAS# 110-49-6 is listed on Canada's DSL list.

WHMIS: This product has a WHMIS classification of B3, D2A, D2B. This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and this MSDS contains all the information required by those regulations.

Ingredient Disclosure List: CAS# 110-49-6 is listed on Canada's Ingredient Disclosure list.

DSCL (EEC):

Hazard Symbols: Xn

Risk Phrases: R10 – Flammable; R20/21/22 – Harmful by inhalation, in contact with skin, and if swallowed; R60 – May impair fertility; R61 – May cause harm to the unborn child.

Safety Phrases: S9 – Keep container in well ventilated place; S16 – Keep away from sources of ignition-No Smoking; S33 – Take precautionary measures against static discharges; S45 – In case of accident or if you feel unwell, seek medical advice immediately, show the label where possible; S53 – Avoid exposure, obtain special instructions before use.

WGK (Water Danger/protection): CAS# 110-49-6: 1

National Fire Protective Association: Health - 1, Flammability - 2, Reactivity - 1

NOTE: NFPA ratings involve data and interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

16. OTHER INFORMATION

The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment.