



Effective Date: 8/4/03

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT & COMPANY INFORMATION

PRODUCT IDENTITY: Ethylene Glycol

Chemical Name: Ethylene Glycol

Chemical Family: Glycol

Synonyms: M.E.G. Monoethylene Glycol; 1, 2-Dihydroxyethane;

1, 2-Ethanediol; Ethylene Dihydrate

Chemical Formula: $C_2H_6O_2$

Formula Wt: 62.08

OLD WORLD INDUSTRIES, INC.

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2. COMPOSITION / INFORMATION ON INGREDIENTS

MATERIAL	CAS#	% BY WT
Ethylene Glycol	107-21-1	99.5%
Diethylene Glycol	111-46-6	0.5%

Exposure Guidelines: OSHA STANDARDS - An employee's exposure to ethylene glycol

shall at no time exceed the ceiling value of 50 ppm (125 mg/m³).

AGGIH THRESHOLD LIMIT VALUES - Ceiling Limit 50 ppm, 127 mg/m³ (1981) Vapor & mist

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance Colorless
Physical State Liquid

Odor Sweet

Hazards of product HARMFUL OR FATAL IF SWALLOWED.
MAY CAUSE EYE IRRITATION
MAY CAUSE RESPIRATORY TRACT IRRITATION.

HAZARD RATING SYSTEM

NPFA: HEALTH: FLAMMABILITY: REACTIVITY:
HMIS: HEALTH: FLAMMABILITY: REACTIVITY: PERSONAL
PROTECTION:

KEY: 0 - Minimal, 1 - Slight, 2 - Moderate, 3 - Serious, 4 – Severe

POTENTIAL HEALTH EFFECTS

Routes of Exposure: Skin, eyes, inhalation, ingestion.

Signs and Symptoms of Exposure: Incidental ingestion of small amounts of ethylene glycol is not likely to cause any significant health effects. Ingestion of large quantities may result in irritability, mental sluggishness, dizziness, malaise, abdominal or back pain. Changes in urine output and appearance, fluid retention, jaundice (yellowish skin color), kidney and liver damage, respiratory failure, and unconsciousness is evidence of severe poisoning. Death may occur in extreme cases.

Skin: Contact with liquid may cause slight skin irritation.

Eyes: Contact with liquid may cause slight eye irritation.

Inhalation: Inhalation of mists or high concentrations of vapors (e.g., from hot operations) may cause upper respiratory tract irritation, headaches or nausea.

Ingestion: Ingestion of large quantities may be harmful, and in extreme poisoning, may be fatal; causes central nervous system depression, cardiopulmonary effects, and kidney and liver damage. See “Signs and Symptoms” for more information.

DELAYED/LONG TERM EFFECTS

Carcinogenic Effects: Ethylene glycol is not considered a carcinogen.

Mutagenic:

Ethylene glycol is not considered a mutagen.

Teratogenic:

Ethylene glycol is considered to be an animal teratogen based on studies in which high levels were given in drinking water. Inhalation and dermal exposure have not produced significant fetotoxicity or malformations in animals. See Section 11, "Toxicology", for further information.

and operated in a pressure-demand or other positive pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode.

Skin Protection:	Protective gloves recommended when prolonged skin contact cannot be avoided. Polyethylene; Neoprene, Nitrile, Polyvinyl alcohol; Natural Rubber; Butyl Rubber. Safety shower should be available.
Eye Protection:	Safety goggles and face shield. Emergency eyewash should be available. Contact lenses should not be worn when working with this chemical.
Engineering Controls:	Use general or local exhaust ventilation to meet TLV requirements.
Special Precautions:	Trace quantities of ethylene oxide (EO) may be present in this product. While these trace quantities could accumulate in the headspace areas of storage transport vessels, they are not expected to create a condition which will result in EO concentration greater than 0.5 ppm (8 hour TWA) in the breathing zone of the workplace for appropriate applications. OSHA has established a permissible exposure limit of 1.0 ppm 8 hour TWA for EO.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	Colorless
Odor:	Sweet
Flash Point – Closed Cup:	116°C 241°F <i>Tag Closed Cup ASTM D 56</i>
Flammable Limits In Air:	
Lower	3.2 %(V) apx
Upper	15.3 % (V) Estimated
Autoignition Temperature:	400 °C 752 °F
Vapor Pressure:	0.06 mmHg 20 °C
Boiling Point (760 mmHg):	>197 °C >387 °F
Vapor Density (air = 1):	2.2
Specific Gravity (H2O = 1):	1.115 20 °C / 20 °C
Freezing Point:	-13 °C 9 °F
Melting Point:	<i>Not applicable (for liquids)</i>
Solubility in Water (by weight):	100%
Molecular Weight:	63 g/mol Approximately

Evaporation Rate: (butyl acetate = 1): 0.01

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions of use.

Incompatibility: Strong oxidizing agents, strong acids and polymerization catalysts. Contact of aqueous ethylene glycol solution with DC-energized silvered copper wires causes ignition of the latter. A mixture of phosphorus (V) sulfide, ethylene glycol, and hexane in a mantle-heated flask spontaneously overheated and exploded at an internal temperature of about 180°C. Mixing of equal weights of ethylene glycol and potassium dichromate at 100°C caused heat to evolve.

Hazardous Decomposition Products: Acrid smoke and irritating fumes. Carbon monoxide and carbon dioxide

Hazardous Polymerization: Will not occur

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Peroral

Human; Lethal Dose; approximately 3 ounces (100 ml) (1/3 cup); (for ethylene glycol).

Peroral

Rat; LD50 = > 6000 mg/kg; Based on information for components(s).

Percutaneous

Rabbit; LD50 = > 22270 mg/kg

Inhalation

Rat; LC50 = > 3.95 mg/l; Aerosol, 7 hours, (for ethylene glycol)

DEVELOPMENTAL TOXICITY

BaTr(m0bon halatiosol, E Tc0.0Duo)21.4(Tr(m0bon halatiosol, E Tch(e)1.8mt)-(for etlartiosol, am)2903 Tv

doses that caused severe maternal toxicity. For ethylene glycol:, Exposures by inhalation or skin contact, the primary routes of occupational exposure, had minimal effect on the fetus, in animal studies.

REPRODUCTIVE TOXICITY

Ingestion of large amounts of ethylene glycol and diethylene glycol has been shown to interfere with reproduction in animals.

CHRONIC TOXICITY AND CARCINOGENICITY

Ethylene glycol did not cause cancer in long-term animal studies., Diethylene glycol has been tested for carcinogenicity in animal studies and is not believed to pose a carcinogenic risk to man.

GENETIC TOXICOLOGY

In Vitro

For ethylene glycol and diethylene glycol:, In vitro mutagenicity studies were negative.

In Vivo

For ethylene glycol and diethylene glycol:, Animal mutagenicity studies were negative.

SIGNIFICANT DATA WITH POSSIBLE RELEVANCE TO HUMANS

Effects have been reported in the following organs:

For ethylene glycol:

Observations in humans include:

Nystagmus (involuntary eye movement).

Repeated excessive exposure may cause irritation of the upper respiratory tract.

12. ECOLOGICAL INFORMATION

12.1 ENVIRONMENTAL FATE

Based largely or completely on information for: Ethylene glycol. Biodegradation reached in Modified OECD Screening Test (OECD Test No. 301 E) after 28 days: >90%. Biodegradation reached in Manometric Respirometry Test (OECD Test No. 301 F) after 28 days: >94%.

12.2 ECOTOXICITY

Based largely or completely on information for:, Ethylene glycol.

Toxicity to Micro-organisms

Bacterial/NA; 16 h; EC50

Result value: > 10000 mg/l

Toxicity to Aquatic Invertebrates
water flea *Ceriodaphnia dubia*; LC50
Result value: (10000 – 25800) mg/l

Toxicity to Aquatic Plants
green alga *Selenastrum capricornutum*; Growth inhibition; EC50
Result value: (9500 – 13000) mg/l

Toxicity to Fish
rainbow trout (*Oncorhynchus mykiss*); LC50
Result value: (18000 – 46000) mg/l

Toxicity to Fish
bluegill (*Lepomis macrochirus*); LC50
Result value: 27540 mg/l

Toxicity to Fish
fathead minnow (*Pimephales promelas*); LC50
Result value: 51000 mg/l

13. DISPOSAL CONSIDERATIONS

DO NOT discharge to sewer. Wear appropriate personal protection. Take up with sand, vermiculite, or similar inert material. Dispose in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

U. S. Department of Transportation (For Bulk Shipment Only)

Proper Shipping Name: Other regulated substance
Liquid, NOS (Ethylene Glycol)

Hazard Class: 9 ID No: UN3082
Label: Miscellaneous RQ Product Packaging Group: III

Shipments with individual packages, i.e. drums, pails or gallons, containing less than RQ (5313 pounds) not subjected to regulation.

15. REGULATORY INFORMATION

15.1 FEDERAL / NATIONAL

OSHA Hazard Communication Standard

This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title

Pennsylvania (Worker And Community Right To Know Act): Pennsylvania Hazardous Substances List And/Or Pennsylvania Environmental Hazardous Substance List:

The following product components are cited in the Pennsylvania Hazardous Substances List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Component	CAS #	Amount
Ethylene glycol	107-21-1	99.5000%
Diethylene glycol	111-46-6	0.5000%

Pennsylvania (Worker And Community Right To Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking Water And Toxic Enforcement Act Of 1986)

Meets current guidelines of allowable limits as of the July 11, 2003 listing.

Component	CAS #	Amount
1,4-Dioxane	123-91-1	<0.000075%
Aetaldehyde	75-07-0	<0.00038%

California SCAQMD Rule 443.1 (South Coast Air Quality Management District Rule 443.1, Labeling of Materials Containing Organic Solvents)

VOC: Vapor pressure 0.06 mmHg at 20 °C
1113.38 g/l

16. OTHER INFORMATION

NFPA ratings for this product are: H - 1 F - 1 R - 0

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