



# Material Safety Data Sheet

## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

### IMPERIAL Global Antifreeze

**Product Number(s):** Imperial Global Antifreeze

**Company Identification**

Imperial Sales Co.  
7600 Dublin Blvd.  
Suite 240  
Dublin, CA 94568

**Transportation Emergency Response**

(24 hr): (925) 556-5530

**Health Emergency**

(925) 556-5530



**Product Information**

Product Information: 925-556-5530  
MSDS Requests: 925-556-5530

## SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

Comp	CAS No.	Percentage (by wt.)	Carcinogen
Ethylene Glycol	107-21-1	From 90 to 97 percent	N/E
Diethylene Glycol	111-46-6	< 5 percent	N/E
Hydrated inorganic acid, organic acid salts	Proprietary	< 4 percent	N/E
Water	7732-18-5	< 4 percent	N/E

N/E – NONE ESTABLISHED

## SECTION 3 HAZARDS IDENTIFICATION

<b>Appearance</b>	Amber colored liquid		
<b>Odor</b>	Slight odor		
	<b>Health</b>	<b>Flammability</b>	<b>Reactivity</b>
<b>NFPA:</b>	1	1	0
<b>HMIS:</b>	2	1	0
<b>Key:</b>	Minimal – 0, Slight – 1, Moderate – 2, Serious – 3, Severe - 4		

**Principal Hazards**

- WARNING.**
- MAY BE FATAL IF SWALLOWED.**
  - VAPORS CAN CAUSE EYE IRRITATION.**

**Minimum LD50 (Oral) (CAS 107-21-1)** 5840 mg/ kg (rats)  
**Minimum LD50 (Skin) (CAS 107-21-1)** 9530 mg/ kg (rabbits)

This material is considered hazardous by the OSHA Hazard Communication Standard 29CFR 1910.1200. See Section 11 for complete health hazard information.

## SECTION 4 FIRST AID MEASURES

<b>Eyes</b>	Immediately flush with water at least 15 minutes, lifting lower and upper lids. Contact lenses should never be worn when working with this chemical. Get medical attention as soon as possible.
<b>Skin</b>	Wash with plenty of soap and water. Immediately remove contaminated clothing. If skin irritation occurs, get medical attention. Launder contaminated clothing before reuse and discard leather articles saturated with the material.
<b>Inhalation</b>	Remove exposed person to fresh air and call <b>emergency medical care</b> . If breathing is labored, administer oxygen. If breathing has stopped, apply artificial respiration.
<b>Oral</b>	Obtain medical attention immediately. If patient is fully conscious, give two glasses of water. <b>DO NOT INDUCE VOMITING</b> . If medical advice is delayed, and if the person has swallowed a moderate volume of material (a few ounces), then give three to four ounces of hard liquor, such as whiskey. For children, give proportionately less liquor, according to weight.

**Notes to physician:** It is estimated that the lethal oral dose to adults is of the order of 1.0 ml/ kg. Ethylene glycol is metabolized by alcohol dehydrogenate to various metabolites including glyceraldehydes, glycolic acid and oxalic acid which cause an elevated anion-gap metabolic acidosis and renal tubular injury. The signs and symptoms in ethylene glycol poisoning are those of metabolic acidosis, CNS depression, and kidney injury. Urinalysis may show albuminuria, hematuria and oxaluria. Clinical chemistry may reveal anion-gap, metabolic acidosis and uremia. The currently recommended medical management of ethylene glycol poisoning includes elimination of ethylene glycol and metabolites, correction of metabolic acidosis and prevention of kidney injury. It is essential to have immediate and follow-up urinalysis and clinical chemistry. There should be a particular emphasis on acid-base balance and renal function tests. A continuous infusion of 5% sodium bicarbonate with frequent monitoring of electrolytes and fluid balance is used to achieve correction of metabolic acidosis and forced diuresis. As a competitive substrate for alcohol dehydrogenase, ethanol is antidotal. Given in the early stages of intoxication, it blocks the formulation of nephrotoxic metabolites. A therapeutically effective blood concentration of ethanol is in the range of 100-150 mg/dl, and should be achieved by a rapid loading dose and maintained by intravenous infusion. For severe and/or deteriorating cases, hemodialysis may be required. Dialysis should be considered for patients who are symptomatic, have severe metabolic acidosis, a blood ethylene glycol concentration greater than 25 mg/dl, or compromise of renal functions.

A more effective intravenous antidote for physician use is 4-methylpyrazole, a potent inhibitor of alcohol dehydrogenases, which effectively blocks the formation of toxic metabolites of ethylene glycol. It has been used to decrease the metabolic consequences of ethylene glycol poisoning before metabolic acidosis coma, seizures, and renal failure have occurred. A generally recommended protocol is a loading dose 15 mg/kg followed 10 mg/kg every 12 hours for 4 doses and then 15 mg/kg every 12 hours until ethylene glycol concentrations are below 20 mg/ 100 ml. Slow intravenous infusion is required. Since 4-methylpyroazole is dialyzable, increased dosage may be necessary during hemodialysis. Additional therapeutic measures may include the administration of cofactors involved in the metabolism of ethylene glycol. Thiamine (100 mg) and pyridoxine (50 mg) should be given every six hours.

Pulmonary edema with hypoxemia has been described in a number of patients following poisoning with ethylene glycol. The mechanism of production has not been elucidated, but it appears to be non-cardiogenic in origin in several cases. Respiratory support with mechanical ventilation and positive end expiratory pressure may be required. There may be cranial nerve involvement in the late stages of toxicity from swallowed ethylene glycol. In particular, effects have been reported involving the seventh, eighth and ninth cranial nerves, presenting with bilateral facial paralysis, diminished hearing and dysphasia.

## SECTION 5 FIRE FIGHTING MEASURES

Flash Point 247 °F (119 °C) Setflash

Auto ignition Temperature:	Ethylene glycol is 748 °F (398 °C)
Flammability Limits:	LFL is 3.2%                      UFL is 15.3%
Extinguishing Media	CO <sub>2</sub> , dry chemical, or foam. Water Fog or fine spray can be used to cool and protect exposed material.
NFPA RATINGS:	Health 1; Flammability 1; Reactivity 0.
Firefighting Procedures	For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Unusual Fire & Explosion Hazards	No fire and explosion hazards expected under ambient storage and handling conditions.

**SECTION 6 ACCIDENTAL RELEASE MEASURES**

Spill Procedures	Evacuate all non-essential personnel. Personal Protective Equipment must be worn, see Personal Protection Section for PPE recommendations. Remove sources of ignition. Ventilate spill area. Prevent entry into sewers and waterways, dispose of in accordance with all federal, state and local environmental regulation. Do not dispose in landfill. Pick up free liquid for recycle and/or disposal. Residual liquid can be absorbed on inert material. Check under Transportation and Labeling (DOT/CERCLA) and Other Regulatory Information Section (SARA) for hazardous substances to determine regulatory reporting requirements for spills.
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**SECTION 7 HANDLING AND STORAGE**

**Handling Procedures.** Keep away from potential sources of ignition. Open container in a well ventilated area. Avoid breathing vapors. Keep containers closed when not in use. Do not discharge into drains or the environment, dispose to an authorized waste collection point. Use appropriate containment to avoid environmental contamination. Product on surfaces can cause slippery conditions. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Launder contaminated clothing before reuse. Empty containers retain material residue. Do not cut, weld, braze, solder, drill, grind or expose containers to heat, flame, spark or other sources of ignition.

**Storage Procedures** Do not store near potential sources of ignition. Store in well ventilated place. Product may become a solid at temperatures below -18 °C (0 °F). Do not store near food, foodstuffs, drugs or potable water supplies. Keep out of reach of children.

**SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION**

<b>Exposure Limits</b>	<b>CAS</b>	<b>PEL (OSHA)</b>	<b>TLV (ACGIH)</b>
Ethylene glycol	107-21-1	50 ppm	50 ppm
Diethylene glycol	111-46-6	None	None
Hydrated inorganic acid, organic acid salts	Proprietary	10 mg/ m <sup>3</sup>	1 mg/ m <sup>3</sup>
Water	7732-18-5	None	None

<b>Engineering Controls</b>	Use material in well ventilated area only. Additional ventilation or exhaust May be required to maintain air concentrations below recommended exposure limits.
<b>Gloves Procedures</b>	Use butyl rubber or neoprene gloves.
<b>Eye Protection</b>	Safety glasses. If potential for splash or mist exists, wear chemical goggles or face shield.
<b>Respiratory Protection</b>	Use NIOSH/MSHA approved full face respirator with a combination organic vapor and dust/mist cartridge if the recommended exposure limit is exceeded. Use self-contained breathing apparatus for entry into confined space, for other poorly ventilated areas and for large spill clean-up sites.
<b>Clothing Recommendation</b>	Long sleeve shirt is recommended. Wear either a chemical protective suit or apron when potential for contact with material exists. Use butyl rubber or neoprene boots when necessary to avoid contaminating shoes. Do not wear rings, watches, contact lenses or similar apparel that could entrap the material and cause a skin reaction. Launder contaminated clothing before reuse.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

<b>Boiling Point</b>	176 °C (349 °F)
<b>Freeze Point</b>	-15 °C (5 °F)
<b>Explosion Data</b>	Material does not have explosive properties.
<b>Vapor Pressure</b>	<0.1
<b>pH (50% in water)</b>	8.0
<b>Specific Gravity</b>	1.12 (15.6 °C)
<b>Pound/ gallon</b>	9.3
<b>Water Solubility</b>	Complete
<b>Odor</b>	Mild
<b>Appearance</b>	Amber colored liquid.
<b>Odor Threshold</b>	Unknown.

*The above data are typical values and do not constitute a specification. Vapor pressure data are calculated unless otherwise noted.*

## SECTION 10 STABILITY AND REACTIVITY

<b>Stability</b>	Material is normally stable at room temperature and pressure. See the Handling and Storage Section for further details.
<b>Decomposition Temp.</b>	Not determined.
<b>Incompatibility</b>	Strong acid or oxidizing agents.
<b>Polymerization</b>	Will not occur.
<b>Thermal Decomposition</b>	Smoke, carbon monoxide, carbon dioxide, aldehydes and other products of incomplete combustion.
<b>Conditions to Avoid</b>	Keep away from flame.

## SECTION 11 TOXICOLOGICAL INFORMATION

**Skin:** The dermal LD50 has not been determined.

**Ingestion:** The lethal dose in humans is estimated to be 100 ml (3 oz.). The oral LD50 for rats is in the 6,000 – 13,000 mg/kg range.

**Hydrated Inorganic Acid Sodium Salt:** The lowest dose of a similar compound reported to produce death in humans was estimated to be 709 mg/kg body weight for a person weighing 150 pounds, this would be equivalent to swallowing about 0.1 pound of the dry material in a short period of time.

**Acute oral LD50s for a similar compound** = 2,650 mg/kg (rats) 2,000 mg/kg (mice)

**Mutagenicity:** Animal and in-vitro mutagenicity studies were negative.

#### -- ACUTE EXPOSURE --

**Peroral:** The lethal dose in humans is estimated to be 3 oz. or 100 ml. Rat: LD50 (6000- 13000) mg/kg

**Percutaneous:** Rabbit LD50 = >22,270 mg/kg; 24 hr. occluded

#### **Inhalation:**

Rat: 8 hr exposure, substantially saturated vapor studies, dynamic generation method. No mortality 0/6. Mist/vapor study, rat, at 170 °C, 8 hr exposure = 2.2 mg/l. No mortality 0/6

Rat: 8 hr exposure, fog = 10,000 ppm; 65 – 70 °C. No mortality 0/6

#### -- CHRONIC EXPOSURE --

#### **Skin Irritation:**

Rabbit: 24 hr occluded contact, 0.5 ml. Results: minor erythema and edema.

Human: Primary irritation patch test, 48 hr. occluded, 0.2 ml. Results: evidence of irritation.

**Eye Irritation:** If material is misted or if vapors are generated from heating, exposure may cause irritation of mucous membranes and the upper respiratory tract. Based on data from components and similar materials.

**Related exposure:** In a 7 day dietary study with rats, a significant increase in kidney weights in females was observed at 5.0 gm/kg. the NOEL was 2.5 gm/kg.

Repeated skin contact with ethylene glycol may, in a very small proportion of cases, cause sensitization with the development of allergic contact dermatitis. The incidence is significantly less than 1% with the undiluted material.

**Chronic Toxicity and Carcinogenicity:** Two chronic feeding studies, using rats and mice, have not produced any evidence that ethylene glycol causes dose-related increase in tumor incidence or a different pattern of tumors compared with untreated controls. The absence of a carcinogenic potential for ethylene glycol has been supported by numerous in-vitro genotoxicity studies showing that it does not produce mutagenic or clastogenic effects.

**Reproductive Toxicity** A three generation study indicated that ethylene glycol did not affect reproductive parameters at dietary concentrations up to 1.0 gm/kg/day in any generation.

**Teratogenicity** Ethylene glycol has been shown to produce dose-related teratogenic effects in rats and mice when given by gavage or in drinking water at high concentrations or doses.

#### -- ADDITIONAL INFORMATION --

**Other:** None

## SECTION 12 ECOLOGICAL INFORMATION

#### **ECOTOXICITY:**

This material is practically non-toxic to aquatic organisms on an acute basis (LD50 > 100 mg/l) in the most sensitive species.

Bacterial/ NA: 16 hr; IC50 > 10,000 mg/l

Daphnia: 48 hr; LC50 > 100,000 mg/l

Fathead minnow: 94 hr; LC50 70,000 mg/l

**ENVIRONMENTAL FATE:** Bioconcentration potential is low (BCF less than 100). Log octanol/water partition coefficient is -1.36. Bioconcentration factor is 10 in golden orfe.

**BOD (% Oxygen Consumption):** Day 5 = 51%, Day 10 = 80%, Day 20 = 97%

### SECTION 13 DISPOSAL CONSIDERATIONS

**Waste Disposal** 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.

### SECTION 14 TRANSPORT INFORMATION

**ICAO/IATA (US)** Not regulated.

**ICAO/IATA (International)** Not regulated.

**IMDG** Not regulated (in quantities under 5,000 lbs in any one inner package).

**IMDG EMS Fire** Not applicable.

**IMDG EMS Spill** Not applicable.

**IMDG MFAG** Not applicable.

**IMO Marine Vessel** ADDITIONAL INFORMATION REQUIRED

**U.S. Barge** ADDITIONAL INFORMATION REQUIRED

**USCG Compatibility** Not determined.

**U.S. DOT Bulk** Environmentally Hazardous Substance, Liquid N.O.S. (Ethylene Glycol) UN 3082, hazard class 9, <= 5,000 lb., PG III

**U.S. DOT Non-Bulk** Not regulated.

**DOT NAERG** 128

**TDG Bulk** Not regulated.

**TDG Non-Bulk** Not regulated.

**Mexico** Not regulated.

**Mexico Non-Bulk** Not regulated.

**Bulk Quantity** 85000 liters, 22457 gal.

**Non-Bulk Quantity** 207.8 liters, 55 gal.

*Review classification requirements before shipping materials at elevated temperatures*

### SECTION 15 REGULATORY INFORMATION

-- Global Chemical Inventories --

**USA** All components of this material are on the US TSCA Inventory or are exempt.

**Canadian Regulations:** This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and this MSDS contains all the information required.

**WHMIS Information: D2A** – material has potential toxic effects. Refer elsewhere in the MSDS for specific warnings and safe handling information. Refer to the employer's workplace education program.

**Other TSCA Reg.** None

-- Other U.S. Federal Regulations --

**SARA Ext. Haz. Subst.**

**SARA Section 313 Emission Reporting:** Ethylene glycol is subject to Form R reporting requirements. (substance) of any chemical substances listed under SARA Section 313.

**SARA 311/ 312 Classifications** Acute Hazard; chronic hazard, 312 reporting; ethylene glycol is subject to Tier I and/or Tier II annual inventory reporting.

**CERCLA Hazardous** Reportable Quantity 5,000 pounds (532 gallons)

**FDA Approval** Not applicable.

-- State Regulations --

**Cal. Prop. 65** The normal consumer use of this product does not result in exposure to chemicals known to the state of California to cause Cancer and/or reproductive harm above the significant risk level for carcinogens or the maximum allowable dose levels for reproductive toxins. Warnings are not required for consumer packaging. However, industrial or other occupational use of this product at higher frequency and using larger quantities of this product may result in exposures exceeding these levels and are labeled accordingly.

**California SCAQMD Rule 443.1** VOC: Vapor pressure 0.06 mm Hg at 20 °C, 1113.38 g/l

**SECTION 16 OTHER INFORMATION**

**NFPA RATINGS:** Health 1; Flammability 1; Reactivity 0; (Least-0, Slight-1, Moderate-2, High-3, Extreme-4). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

**REVISION STATEMENT: Revision Date: 8/25/2010**

**ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:**

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - ChevronTexaco	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by IPAC, 7600 Dublin Blvd, Suite 240, Dublin, CA 94568.

**The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.**