

MATERIAL SAFETY DATA SHEET



===== CHEMICAL PRODUCT AND COMPANY IDENTIFICATION =====

TRADE NAME: BP EXTENDED LIFE ANTIFREEZE & COOLANT
CAS NUMBER: Mixture
SYNONYM(S): ETHYLENE GLYCOL BASED ANTIFREEZE
MSDS NUMBER: 5178
PRODUCT CODE: ND
HIERARCHY: ND
MANUFACTURER/SUPPLIER: BP Oil Company
ADDRESS: 200 Public Square, Cleveland, OH 44114-2375
TELEPHONE NUMBERS - 24 HOUR EMERGENCY ASSISTANCE:
BP America: 800-321-8642
CHEMTREC Assistance (In U.S.): 800-424-9300
CHEMTREC Assistance (Elsewhere): 703-527-3887
TELEPHONE NUMBERS - GENERAL ASSISTANCE: (Normal Office Hours):
(8:00-4:30 M-F, EST):
Technical: 216-586-6184
MSDS Contact: 216-586-8023

===== COMPOSITION/INFORMATION ON INGREDIENTS =====

COMPONENT: Ethylene glycol
CAS NO.: 107-21-1
% BY WT.: 95 - 96
EXPOSURE LIMITS:
100 mg/m³ (aerosol) CEIL ACGIH
125 mg/m³ (50 ppm) CEIL OSHA

COMPONENT: Proprietary Corrosion Inhibitors
CAS NO.: Trade Secret
% BY WT.: < 5
EXPOSURE LIMITS: None Established

COMPONENT: Sodium Molybdate
CAS NO.: 7631-95-0
% BY WT.: < 1
EXPOSURE LIMITS: None Established

Remaining components not determined hazardous and/or hazardous components present at less than 1.0% (0.1% for carcinogens).

The OSHA Permissible Exposure Limits listed above were

promulgated by OSHA in 1989. This standard was vacated by the U.S. Court of Appeals for the Eleventh Circuit. Exposure limits defined in specific chemical standards found in 29 CFR 1910.1000-1048 are not covered by this ruling and are still enforceable.

===== HAZARDS IDENTIFICATION =====

EMERGENCY OVERVIEW:

Clear Orange Liquid With a Mild Glycol Odor.
Warning! Harmful or Fatal If Swallowed. Aspiration Hazard If Swallowed--Can Enter Lungs and Cause Damage. May Be Harmful If Inhaled. May Be Irritating To the Skin, Eyes and Respiratory Tract. Overexposure May Cause Kidney Damage. Overexposure May Cause Adverse CNS Effects. Possible Reproductive Hazard (Contains Material Which May Cause Reproductive Effects Based On Animal Data).

POTENTIAL HEALTH EFFECTS:

SKIN:

Repeated or prolonged skin contact may cause reddening, itching and inflammation. Not readily absorbed through the skin in toxic amounts.

EYE:

Exposure to vapors, fumes or mists may cause irritation. Direct contact may cause irritation, swelling of the eyelids and conjunctivitis. May also cause lacrimation.

INHALATION:

May cause respiratory tract irritation and pulmonary edema. Repeated or prolonged exposures may cause loss of consciousness, oscillation of the eyeballs and blood changes. Exposure may cause symptoms similar to those listed under "Ingestion" (see Ingestion section).

INGESTION:

May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting and diarrhea. Aspiration into lungs may cause pneumonitis. Primary toxic effect is kidney damage leading to oxaluria, lack of urine formation and kidney failure. May cause harmful central nervous system effects. Effects may include excitation, euphoria, headache, dizziness, drowsiness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death. Other effects may include rapid breathing and heartbeat, low blood pressure, inflammation of the lung, bronchopneumonia, metabolic acidosis, and brain, liver and spleen damage and blood changes. May also effect the vision, bones and joints.

SPECIAL TOXIC EFFECTS:

May cause adverse reproductive effects, based on tests with

laboratory animals. Diethylene glycol has caused bladder cancer in laboratory animals as a secondary effect to the formation of bladder stones. Spilled antifreeze may be harmful or fatal to pets if ingested.

See Section FIRST AID MEASURES - for Medical Conditions Aggravated By Exposure.

===== FIRST AID MEASURES =====

SKIN:

Remove contaminated clothing immediately. Wash area of contact thoroughly with soap and water. A physician may need to examine the area if irritation or pain persists after washing. Place contaminated clothing in closed container for storage until laundered or discarded. Discard contaminated leather goods.

EYE:

Flush immediately with large amounts of water for 20-30 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get medical attention if irritation results.

INHALATION:

Remove affected person from source of exposure. If not breathing, ensure clear airway and institute cardiopulmonary resuscitation (CPR). If breathing is difficult, administer oxygen if available. After administration of oxygen, continue to monitor closely. Get immediate medical attention. Keep affected person warm and at rest.

INGESTION:

Do not induce vomiting. Do not wait for symptoms to develop. Do not make an unconscious person vomit. Get immediate medical attention. Keep affected person warm and at rest.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Persons with pre-existing skin, respiratory or blood disorders may be at an increased risk from exposure to this product.

NOTES TO PHYSICIAN:

Even small quantities of ingested ethylene glycol are reason for extreme medical concern of renal failure. Do not wait for symptoms to develop. The lethal dose for adult humans is about 3-4 ounces, or 1.4 ml/kg body weight. General symptoms are usually delayed 1 to 2 hours after ingestion. Repeated or prolonged exposures may lead to central nervous system effects progressing to unconsciousness. Nystagmus is a prominent sign. Chronic effects may include depressed blood formation and renal insufficiency. Treatments should consider gastric lavage or emesis, administration of oxygen or artificial respiration, copious fluid intake in absence of renal impairment, administration of specific antidotes and supportive treatment for shock, acidosis, uremia and pulmonary edema. Early administration of ethanol may

counter toxic effects. Blood ethanol levels of 100 mg/dl or higher are required to be effective. Consult standard literature for specific treatments. Severely intoxicated individuals must be observed for days or weeks to evaluate chronic effects on renal function, hematopoiesis, liver and nervous system. Support respiratory and cardiovascular function. Obtain complete blood count, electrolytes, urinalysis (look for oxalate crystals), and arterial blood gases in all patients with a history of ingestion or who are symptomatic. Exposed eyes should be irrigated with sterile saline for at least 60 minutes. If irritation, pain, swelling, lacrimation, or photophobia persist after irrigation, an ophthalmologic examination should be performed. Induction of emesis is not recommended because of the potential for CNS depression. Gastric lavage may be indicated if performed soon after ingestion (generally within 60 minutes), or in patients who are comatose or at risk of convulsing. Protect the airway in alert patients by placement of the patient in Trendelenburg and left lateral decubitus position, with suction available. In obtunded or unconscious patients, by endotracheal intubation. Administration of activated charcoal and cathartics should be considered and seizures should be controlled. Consult standard references for drugs, dosages and administration. Respiratory tract irritation, if severe, can progress to pulmonary edema which may be delayed in onset up to 24 to 72 hours after exposure in some cases. Maintain adequate ventilation and oxygenation with close monitoring of arterial blood gases. Crystalloid solutions must be administered carefully, AVOIDING a net positive fluid balance. Monitor arterial blood gas as a guide to severity of intoxication. Severe normochloremic anion gap metabolic acidosis is common. A pH of less than 7.0 and bicarbonate less than 7 milliequivalents/liter are not uncommon following severe intoxication. Sodium bicarbonate should be administered to improve acidemia. Determine blood ethylene glycol and ethanol levels. Determine plasma osmolarity if the ethylene glycol level is not readily available. Ethylene glycol, like ethanol, is osmotically active and will cause an osmolar gap. However, a normal osmolar gap does NOT exclude the possibility of ethylene glycol intoxication. Ethylene glycol levels greater than 50 milligrams/deciliter (8.06 millimoles/liter) are frequently associated with severe intoxication. Monitor renal function closely. Renal insufficiency may develop 2 to 3 days postingestion. Ethanol competitively inhibits alcohol dehydrogenase (ADH) and prevents the formation of toxic metabolites. The affinity of ethylene glycol for ADH appears to be similar to ethanol. Ethanol therapy may be considered in the following situations: (a) Anion gap metabolic acidosis associated with a history of ethylene glycol ingestion; (b) Blood ethylene glycol level greater than 20 milligrams/deciliter (3.2 millimoles/liter); (c) Any symptomatic patient with a history of ethylene glycol ingestion; (d) Ethylene glycol level not readily available but suspect concurrent ingestion of ethanol and ethylene glycol which may mask initial symptoms and laboratory findings. If the patient has concurrently ingested ethanol, then the ethanol loading dose must be modified so that the blood ethanol level does not exceed 100 to 130 milligrams/deciliter (21.7 to 28.2 millimoles/liter). Ethanol therapy should be initiated in those patients with signs or symptoms of severe poisoning (acidemia, toxic blood level) despite a history of recent disulfiram (Antabuse(R)) ingestion. The risk of not treating these patients is excessive, especially if hemodialysis is not immediately available. Administer

the ethanol cautiously with special attention to the severity of the "Antabuse reaction" (flushing, sweating, severe hypotension, and cardiac arrhythmias). Be prepared to treat hypotension with fluids and pressor agents (norepinephrine or dopamine). Monitor EKG and vital signs carefully. Hemodialysis should be performed as soon as adequate vital signs are established. Indications for dialysis are blood ethylene glycol level greater than 50 milligrams/deciliter (8.06 millimoles/liter), with or without acidosis; severe metabolic acidosis with pH <7.15; renal failure; and/or fluid-electrolyte disturbances despite conventional therapy. Consult standard references for ethanol dosage and administration. Ethanol therapy should be continued until the following criteria are met: (a) Ethylene glycol concentration is less than 10 milligrams/deciliter; (b) Glycolic acid metabolite is no longer detectable; (c) Ethylene glycol-induced acidosis (pH, blood gases), clinical findings (CNS), and osmolal gap have resolved. If no serum concentrations are available, ethanol therapy should be continued for a minimum of 3 days in the absence of dialysis, one day when dialysis has been performed, or until clinical findings resolve, whichever is longer. 4-Methylpyrazole (4-MP), a specific antagonist of alcohol dehydrogenase, has been used in experimental animals and shows promise because of its apparent low level of toxicity and availability as a replacement for ethanol. It is now available for human ethylene glycol poisonings under the trade name Antizol(TM), fomepizole, in the United States. 4-MP is currently being used clinically in some European countries, and is now FDA approved in the United States for ethylene glycol poisonings in humans. 4-MP (fomepizole) is available from Orphan Drug, Inc. (1-800-359-4304 or 1-888-867-7426). 4-MP may be used as an alternative to ethanol therapy and may be preferable. It may be necessary to increase the dose of 4-MP during dialysis. The manufacturer recommends a loading dose of 15 milligrams/kilogram intravenous infusion over 30 minutes followed by doses of 10 milligrams/kilogram every 12 hours for 4 doses, then 15 milligrams/kilogram every 12 hours until ethylene glycol levels are below 20 milligrams/deciliter. Thiamine, 100 milligrams intravenously daily, is recommended to stimulate the conversion of glyoxylate to alpha-hydroxy-beta-ketoadipate, a non-toxic metabolite. Administer 100 milligrams of pyridoxine intravenously daily, to allow adequate stores of cofactor necessary for the conversion of glyoxylate to nontoxic glycine.

===== FIREFIGHTING MEASURES =====

FLASH POINT:	128 C (262.4 F) COC
AUTOIGNITION TEMPERATURE:	413 C (775.4 F)
FLAMMABILITY LIMITS IN AIR (% BY VOL.) LOWER:	> 3.2
FLAMMABILITY LIMITS IN AIR (% BY VOL.) UPPER:	< 15.3

HAZARDOUS COMBUSTION PRODUCTS:

Combustion may produce CO and CO2.

BASIC FIRE FIGHTING PROCEDURES:

Use water spray, dry chemical, alcohol foam, all purpose AFFF or carbon dioxide to extinguish fire. Water or foam may cause frothing, with further application leading to boilover. Use water spray to cool

fire-exposed containers, structures and to protect personnel. Use water to dilute spills and to flush them away from sources of ignition. Do not flush down public sewers or other drainage systems. Exposed firefighters must wear MSHA/NIOSH approved positive pressure self-contained breathing apparatus with full face mask and full protective clothing.

UNUSUAL FIRE & EXPLOSION HAZARDS:

Combustible at high temperatures. Containers may explode in heat of fire. Fire may produce poisonous or irritating gas, fumes or vapor.

===== ACCIDENTAL RELEASE MEASURES =====

If your facility or operation has an "Oil or Hazardous Substance Contingency Plan", activate its procedures. Take immediate steps to stop and contain the spill. Caution should be exercised regarding personnel safety and exposure to the spilled material. For technical advice and assistance related to chemicals, contact CHEMTREC (800/424-9300) and your local fire department. Notify the National Response Center, if required. Also notify appropriate state and local regulatory agencies, the LEPC and the SERC. Contact the local Coast Guard if the release is into a waterway. Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low areas. (Also see Personal Protection Information section.) Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in fire.

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch or walk through spilled material. Stop leak if you can do it without risk. Water spray may reduce vapor; but may not prevent ignition in inclosed areas. Small Spills: Take up with sand or other noncombustible absorbent material and place into containers for later disposal. Large Spills: Dike far ahead of liquid spill for later disposal.

During an accidental release, personal protection equipment may be required (see Section EXPOSURE CONTROLS/PERSONAL PROTECTION). Additional regulatory requirements may apply (see Section REGULATORY INFORMATION).

===== HANDLING AND STORAGE =====

HANDLING:

Do not eat, drink or smoke in areas of use or storage. Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Remove contaminated clothing and clean before reuse. Wash thoroughly after work using soap and water.

Empty containers may contain toxic, flammable/combustible or explosive residue or vapors. Do not cut, grind, drill, weld, reuse or dispose containers unless adequate precautions are taken against these hazards.

STORAGE:

Store in tightly closed containers in cool, dry, isolated,

well-ventilated area away from heat, sources of ignition and incompatibles. Do not store in unlabeled containers.

===== EXPOSURE CONTROLS / PERSONAL PROTECTION =====

ENGINEERING CONTROLS:

Ventilation and other forms of engineering controls are often the preferred means for controlling chemical exposures.

PERSONAL PROTECTION EQUIPMENT (PPE):

EYE PROTECTION:

Avoid eye contact with this material. Wear safety glasses or chemical goggles. Provide an eyewash station immediately accessible to the work area.

SKIN PROTECTION:

Avoid skin contact. When working with this substance, wear appropriate chemical protective gloves. Depending upon conditions of use, additional protection may be necessary such as face shield, apron, armcovers, etc.

RESPIRATORY PROTECTION:

If exposure limits are exceeded or if irritation is experienced, NIOSH approved respiratory protection should be worn. Respiratory protection may be needed for non-routine or emergency situations.

See Section COMPOSITION/INFORMATION ON INGREDIENTS For Exposure Guidelines.

===== PHYSICAL AND CHEMICAL PROPERTIES =====

BOILING POINT:	160 C (320 F)
SP. GRAVITY (Water=1):	1.127 @ 60 C (140 F)
MELTING POINT:	ND
% VOLATILE:	ND
VAPOR PRESSURE:	18 MM HG
EVAPORATION RATE:	ND
VAPOR DENSITY (Air=1):	2.14
VISCOSITY:	ND
% SOLUBILITY IN WATER:	100
OCTANOL/WATER PARTITION COEFFICIENT:	ND
POUR POINT:	ND
pH:	10 - 11
BULK DENSITY:	ND
MOLECULAR WEIGHT:	ND
MOLECULAR FORMULA:	Mixture

ODOR/APPEARANCE:
Clear Orange Liquid With a Mild Glycol Odor.

===== STABILITY AND REACTIVITY =====

STABILITY/INCOMPATIBILITY:

Stable under conditions of normal use. Avoid contact with oxidizers

 IMDG Proper Shipping Name: Compounds, Anti-freezing, NOI
 (when in Bulk contact the
 Distribution Dept.)
 Hazard Class: Not Regulated
 UN Code: Not Regulated
 IMDG Page Number: Not Regulated
 Labels Required: Not Regulated
 Placards Required: Not Regulated

CANADIAN TRANSPORTATION OF DANGEROUS GOODS (T.D.G.):

Shipping Name: Compounds, Anti-freezing, NOI
 (when in bulk by rail contact
 Distribution Dept.)
 PIN (UN/NA): Not Regulated
 Regulated Class: Not Regulated
 Division: Not Regulated
 Packaging Group: Not Regulated
 Labels Required: Not Regulated
 Placards Required: Not Regulated

===== REGULATORY INFORMATION =====

NOTIFICATION:

The reportable quantity for this material is 5000* pound(s). This material contains one or more constituents regulated as hazardous substances under U.S. Federal Law. Any spill or other release, or substantial threat of release, of this material to the air, water or land (unless entirely contained in the workplace) equal to or in excess of the reportable quantity must be reported immediately to the National Response Center (800/424-8802). Also contact appropriate state and local regulatory agencies. Contact the Coast Guard if spilled into navigable waterways under their jurisdiction. Failure to report may result in substantial civil and criminal penalties. * Calculated on the basis for whichever hazardous component provides the lowest value for: RQ / % in mixture

CLEAN AIR ACT:

This material is listed as a hazardous air pollutant under U.S. Federal regulations. See 40 CFR Part 61 and 63 for restrictions which may apply to its use.

US EPA TOXIC SUBSTANCE CONTROL ACT (TSCA):

All components of this product are listed on the TSCA inventory.

US EPA SUPERFUND AMENDMENTS & REAUTHORIZATION ACT (SARA) TITLE III INFORMATION:

Listed below are the hazard categories for SARA Section 311/312 (40 CFR 370):

Immediate Hazard: X
 Delayed Hazard: X

Fire Hazard: -
Pressure Hazard: -
Reactivity Hazard: -

This product contains the following toxic chemicals subject to the annual toxic chemical release reporting requirements of SARA Section 313 (40 CFR 372):

COMPONENT:	CAS NO.:	% BY WT.:
Ethylene glycol	107-21-1	96

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA):

All components of this product are listed on the Canadian DSL Inventory.

CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) CATEGORIES:

The following WHMIS categories apply to this product:

Compressed Gas:	-	Other Toxic Effects:	X
Flammable/Combustible:	-	Bio Hazardous:	-
Oxidizer:	-	Corrosive:	-
Acutely Toxic:	X	Dangerously Reactive:	-

STATE REGULATIONS:

Labeling of ethylene glycol antifreeze packages must conform with regulations of 16 CFR 1500.132. Packaging of product containing 10% or more of ethylene glycol may have to conform to packaging regulations of 16 CFR 1700.14 (a) (11) if considered a household item.

===== OTHER INFORMATION =====

NFPA RATINGS:

Health:	1
Flammability:	1
Reactivity:	0
Special Hazards:	-

HMS RATINGS:

Health:	1
Flammability:	1
Reactivity:	0
Personal Protective Equipment:	H

REVISION DATE:

18-aug-1998

REPLACES SHEET DATED:

31-jul-1998

COMPLETED BY:

BP OIL HSEQ DEPARTMENT

REVISION SUMMARY: The following section(s) have been revised since the previous issue of this MSDS:

HAZARDS IDENTIFICATION

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. However, no warranty or representation, express or implied, is made as to the accuracy or completeness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards

inherent in the nature of the product.

ND: No Data NA: Not Applicable *See specific note or section