



Material Safety Data Sheet

1. - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

WINTER'Z EDGE

Date: August 1, 2012 SYNONYM: Glycol Ether EB

COMPANY IDENTIFICATION

Advanced Fuel Solutions
1060 Osgood Street
North Andover, MA 01845

EMERGENCY TELEPHONE NUMBERS

Health: (800) 424-9300 or (703) 527 3887

PRODUCT INFORMATION:

MSDS Requests (888) 900-7787

Technical Information: (888) 900-7787

2. - COMPOSITION/INFORMATION ON INGREDIENTS

"WINTER'Z EDGE"

MAJOR

COMPONENTS

ETHYLENE GLYCOL MONOBUTYL ETHER
CAS111762

AMOUNT

up to 90%

PETROLEUM DISTILLATES

CAS8008206

0 - 40%

3. HAZARDS IDENTIFICATION

***** EMERGENCY OVERVIEW *****

Clear liquid with mild odor

- **COMBUSTIBLE LIQUID AND VAPOR**
- **HARMFUL IF SWALLOWED – CAUSES EYE IRRITATION**
- **MODERATELY TOXIC TO AQUATIC ORGANISMS**

POTENTIAL HEALTH EFFECTS:

EYE CONTACT: May cause severe eye irritation. May cause moderate corneal injury. Effects may be slow to heal. Vapor may cause eye irritation experienced as mild discomfort and redness.

SKIN CONTACT: Brief contact may cause slight skin irritation with local redness. Repeated exposure may cause irritation, even a burn. May cause more severe response on covered skin (under clothing, gloves).

SKIN ABSORPTION: Prolonged skin contact to animals which are less sensitive to hemolysis, as are humans, did not result in the absorption of harmful amounts.

INGESTION: Moderate toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. In animals, effects have been reported on the following organs:

blood (hemolysis) and secondary effects on the kidney and liver. Human red blood cells have been shown to be significantly less sensitive to hemolysis than those of rodents and rabbits. Massive ingestion of ethylene glycol monobutyl ether (attempted suicides) may produce metabolic acidosis and subsequent secondary effects such as hemolysis, central nervous system and kidney effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat). In humans, symptoms may include: headache. In animals, effects have been reported on the following organs: blood (hemolysis) and secondary effects on the kidney and liver. Human red blood cells have been shown to be significantly less sensitive to hemolysis than those of rodents and rabbits.

INHALATION:

ASPIRATION HAZARD:

Aspiration into the lung may occur during ingestion or vomiting, resulting in rapid absorption and injury to other body systems.

EFFECTS OF REPEATED EXPOSURE:

In animals, effects have been reported on the following organs: blood (hemolysis) and secondary effects on the kidney and liver. Human red blood cells have been shown to be significantly less sensitive to hemolysis than those of rodents and rabbits.

CARCINOGENICITY: In long-term animal studies with ethylene glycol butyl ether, small but statistically significant increases in tumors were observed in mice but not rats. The effects are not believed to be relevant to humans. If the material is handled in accordance with proper industrial handling procedures, exposures should not pose a carcinogenic risk to man.

BIRTH DEFECTS/ DEVELOPMENTAL

EFFECTS:

Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

REPRODUCTIVE

EFFECTS:

In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

4. FIRST AID MEASURES

EYE:	Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist.
SKIN:	Wash skin with plenty of water.
INGESTION:	Do not induce vomiting. Seek medical attention immediately. If person is fully conscious give 1 cup or 8 ounces (240ml) of water. If medical advice is delayed and if an adult has swallowed several ounces of chemical, then give 3-4 ounces (1/3-1/2 Cup) (90-120ml) of hard liquor such as 80 proof whiskey. For children, give proportionally less liquor at a dose of 0.3 ounce (1 ½ tsp) (8ml) liquor or each 10 pounds of body weight, or 2 ml per kg body weight [e.g., 1.2 ounce (2 1/3 Tbsp.) for a 40 pound child or 36 ml for an 18 kg child]
INHALATION:	Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc.). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.
NOTE TO PHYSICIANS:	Due to structural analogy and clinical data, this material may have a mechanism of intoxication similar to ethylene glycol. On that basis, treatment similar to ethylene glycol intoxication may be of benefit. In cases where several ounces (60-100ml) have been ingested, consider the use of ethanol and hemodialysis in the treatment. Consult standard literature for details of treatment. If ethanol is used, a therapeutically effective blood concentration in the range of 100-150 mg/dl may be achieved by a rapid loading dose followed by a continuous intravenous infusion. Consult standard literature for details of treatment. 4-Methyl pyrazole (Antizol®) is an effective blocker of alcohol dehydrogenate and should be used in the treatment of ethylene glycol (EG), di- or triethylene glycol (DEG, TEG), ethylene glycol butyl ether (EGBE), or methanol intoxication if available. Fomepizole protocol (Brent, J. et al., New England Journal of Medicine, Feb. 8, 2001, 344:6, p. 424-9); loading dose 15 mg/kg intravenously, follow by bolus dose of 10 mg/kg every 1 hours; after 48 hours, increase bolus dose to 15 mg/kg every 12 hours; after 48 hours, increase bolus dose to 15 mg/kg every 12 hours. Continue fomepizole until serum methanol, EG, DEG, TEG or EGBE are undetectable. The signs and symptoms of poisoning include anion gap metabolic acidosis, CNS depression, renal tubular injury, and possible late stage cranial nerve involvement. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. Maintain adequate ventilation and oxygenation of the patient. In severe poisoning, respiratory support with mechanical ventilation and positive end expiratory pressure may be required. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. If burn is present, treat as any thermal burn, after decontamination. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.
EMERGENCY PERSONNEL PROTECTION:	First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

5. FIRE FIGHTING MEASURES

EXTINGUISHING

MEDIA: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

FIRE CLASSIFICATION: Combustible liquid.

FLAMMABLE PROPERTIES: FLASH POINT: closed cup >55°C (>132°F) (Pensky-Martens)

AUTOIGNITION: 210°C (410°F)

FLAMMABILITY LIMITS (% by volume in air): Lower: 1.3; Upper: 10.6

EXTINGUISHING MEDIA: water fog., foam, CO₂, dry chemicals

NFPA RATINGS:

Health 2; Flammability 2; Reactivity 0

FIRE FIGHTING

INSTRUCTIONS:

Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream, may spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

SPECIAL PROTECTIVE EQUIPMENT FOR

FIREFIGHTERS:

Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. Fore protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

UNUSUAL FIRE AND

EXPLOSION HAZARDS:

Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

HAZARDOUS

COMBUSTION

PRODUCTS:

During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

6. ACCIDENTAL RELEASE MEASURE

EMERGENCY NUMBER: CHEMTREC: (800) 424-9300

ACCIDENTAL RELEASE

MEASURES:

Contain spilled material if possible. Small spills: Absorb with materials such as: Noncombustible material. Clay. Zorb-all. Large spills: Dike area to contain spill. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.. The toll free number for the U.S. Coast Guard National Response Center is (800) 424-8802.

7. HANDLING AND STORAGE

Avoid breathing vapor. Do not get in eyes, on skin, on clothing. Do not swallow. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. Keep away from heat, sparks and flame. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Spills of these organic materials on hot fibrous insulations may lead to lowering of the auto-ignition temperature possibly resulting in spontaneous combustion.

Store in the following material(s): Carbon steel. Stainless steel. Phenolic lined steel drums. Do not store in: Aluminum. Copper. Galvanized iron. Galvanized steel. See Section 10 for more specific information.

Avoid work practices that may release volatile components into the atmosphere. Local air pollution regulations should be consulted to determine if the release of volatile components is regulated or restricted in the area in which this material is used. Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS:	Component	List	Type	Value
	Ethylene glycol monobutyl ether	ACGIH	TWA	20 ppm
	OSHA Table Z-1	PEL	240 mg/m3	50ppm Skin

GENERAL

CONSIDERATIONS: A "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

PERSONAL PROTECTION

EYE/FACE

PROTECTION: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

SKIN PROTECTION: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly.

HAND PROTECTION: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. **NOTICE:** The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION (Cont.)

RESPIRATORY PROTECTION:	Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge.
INGESTION:	Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.
ENGINEERING CONTROLS	
VENTILATION:	Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DESCRIPTION:	Clear colored liquid with mild petroleum odor
FLASH POINT – Closed cup:	55 deg C (132 deg F) Literature
AUTOIGNITION TEMPERATURE:	224 deg C (435 deg F) Literature
SPECIFIC GRAVITY (H2O=1):	0.8676 20 deg C/20 deg C Hydrometer

10. STABILITY AND REACTIVITY

STABILITY/INSTABILITY:	Thermally stable at typical use temperatures
CONDITIONS TO AVOID:	Do no distill to dryness. Product can oxidize at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems..
INCOMPATIBLE MATERIALS:	Avoid contact with: Strong acids. Strong oxidizers.
HAZARDOUS POLYMERIZATION:	Polymerization will not occur.
THERMAL DECOMPOSITION:	Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aldehydes. Ketones. Organic acids.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

INGESTION: LD50, Guinea pig 1,400 mg/kg
LD50, Rat, male 1,746 mg/kg

SKIN ABSORPTION: LD50, Guinea pig > 2,000 mg/kg
LD50, Rat 2,270 mg/kg

INHALATION: LC50, 7 H, Vapor, Rat 700 ppm

SENSITIZATION

SKIN: Did not cause allergic skin reactions when tested in humans.
Did not cause allergic skin reactions when tested in Guinea pigs

REPEATED DOSE TOXICITY: In animals, effects have been reported on the following organs: blood (hemolysis) and secondary effects on the kidney and liver. Human red blood cells have been shown to be significantly less sensitive to hemolysis than those of rodents and rabbits.

CHRONIC TOXICITY AND CARCINOGENICITY:

In long-term animal studies with ethylene glycol butyl ether, small but statistically significant increases in tumors were observed in mice but not rats. The effects are not believed to be relevant to humans. If the material is handled in accordance with proper industrial handling procedures, exposures should not pose a carcinogenic risk to man.

CARCINOGENICITY CLASSIFICATIONS:

<u>Component</u>	<u>List</u>	<u>Classification</u>
Ethylene glycol monobutyl ether	ACGIH	Confirmed animal carcinogen with unknown relevance to humans Group A3

DEVELOPMENTAL TOXICITY:

Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

GENERAL TOXICOLOGY:

In vitro genetic toxicity studies were predominantly negative. Animal genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE

MOVEMENT AND PARTITIONING: Bio-concentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is high (Koc between 50 and 150) Henrys Law Constant (H): 1/60E-06 atm*m3/mole Measured Partition coefficient, n-octanol/water (log Pow): 0.83 Measured Partition coefficient, soil organic carbon/water (Koc); 67 Estimated

PERSISTENCE AND DEGRADABILITY:

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches .70% mineralization in OECD test(s) for inherent biodegradability).

OECD BIODEGRADATION TESTS:

<u>Biodegradation</u>	<u>Exposure Time</u>	<u>Method</u>
95%	28d	OECD 301E Test
100%	28d	OECD 302B Test

BIOLOGICAL OXYGEN DEMAND (BOD):

<u>BOD 5</u>	<u>BOD 10</u>	<u>BOD 20</u>	<u>BOD 28</u>
5.2%	57%	72.2%	

CHEMICAL OXYGEN DEMAND:

2.21 mg/g

THEORETICAL OXYGEN DEMAND:

2.30 mg/mg

ECOTOXICITY:

This material is moderately toxic to aquatic organisms. (LC50/EC50 between 1 and 10 mg/L in most sensitive species tested.)

FISH ACUTE AND PROLONGED TOXICITY:

LC50, bluegill (*Lepomis macrochirus*), 96h: 820-1,490 mg/l
LC50, rainbow trout (*Oncorhynchus mykiss*), 96h: 1,700 mg/l

AQUATIC INVERTEBRATE ACUTE TOXICITY:

LC50, water flea (*Daphnia magna*): 835 mg/l
EC50, water flea (*Daphnia magna*) immobilization: 1,600 – 2,500 mg/l
LC50, grass shrimp (*Palaemonetes pugio*), static, 96h: 5.4 mg/l
LC50, common shrimp (*Crangon crangon*), static, 96h: 550-950 mg/l

AQUATIC PLANT TOXICITY:

EC50, green alga *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum*), biomass growth inhibition, 72h: 911 mg/l

TOXICITY TO MICRO-ORGANISMS:

IC50; bacteria: >1,000 mg/l

13. DISPOSAL CONSIDERATIONS

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED AND UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

14. TRANSPORT INFORMATION

DOT Non-Bulk: NOT REGULATED
DOT BULK

DOT SHIPPING NAME: COMBUSTIBLE LIQUID, N.O.S.
TECHNICAL NAME: CONTAINS ETHYLENE GLYCOL MONOBUTYL ETHER
DOT HAZARD CLASS: COMBUSTIBLE LIQUID
DOT IDENTIFICATION NUMBER: NA1993
DOT PACKING GROUP: PG III

IMDG: NOT REGULATED

ICAO/IATA: NOT REGULATED

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

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 III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312:

Immediate (Acute) Health Hazard	Yes
Delayed (Chronic) Health Hazard	Yes
Fire Hazard	Yes
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313:

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372:

<u>Component</u>	<u>CAS#</u>	<u>Amount</u>
Ethylene glycol monobutyl ether	111-76-2	up to 99.0%

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 Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

<u>Component</u>	<u>CAS#</u>	<u>Amount</u>
Ethylene glycol monobutyl ether	111-76-2	up to 99.0%

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)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

15. REGULATORY INFORMATION (Cont.)

U.S. Toxic Substances Control Act

A11 components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

CEPA – Domestic Substances List (DSL)

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not

16. OTHER INFORMATION

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

N/A - Not Available

TWA - Time Weighted Average

W/W – Weight/Weight

OEL – Occupational Exposure Limit

STEL – Short Term Exposure Limit

ACGIH – American Conference of Governmental Industrial

WEELO – Workplace Environmental Exposure Level

DOW IHG – Dow Industrial Hygiene Guideline

HAZ DES – Hazard Designation

Action Level – A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded.

THE INFORMATION CONTAINED HEREIN IS BELIEVED TO BE ACCURATE. IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT FOR PURPOSE OF HAZARD COMMUNICATION AS PART OF DIESEL DIRECT'S PRODUCT SAFETY PROGRAM, IT IS NOT INTENDED TO CONSTITUTE PERFORMANCE INFORMATION CONCERNING THE PRODUCT. NO EXPRESS WARRANTY, OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE WITH RESPECT TO THE PRODUCT OR THE INFORMATION CONTAINED HEREIN. 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.

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Date: **10-16-14**- Inquiries regarding MSDS should be directed to:
DIESEL DIRECT - 74 Maple Street – Stoughton, MA. 02072 – 888-900-7787