

<b>PRODUCT NAME:</b>	<b>DA-2F (ANHYDROUS)</b> DENATURED ETHYL ALCOHOL GRADE NO. 2F	Page 1 of 6
<b>MSDS NO:</b>	<b>1559R05</b>	EFFECTIVE DATE: September 1, 2008

**MANUFACTURED BY: Greenfield Ethanol , Commercial Alcohols**  
 Bruce Energy Centre 275 Bloomfield Road 3300 boulevard Marie-Victorin 2 Chelsea Lane 141 Commerce Drive, RR3  
 4th Concession Chatham, Ontario Varennes, Quebec Brampton, Ontario Prescott, Ontario  
 Tiverton, Ontario N7M 5J5 J3X 1P7 L6T 3Y4 K0E 1T0  
 N0G 2T0

**EMERGENCY PHONE NUMBER: CANUTEC (613) 996-6666**

**TRANSPORTATION**

<b>PRIMARY CLASS:</b>	3	<b>CLASS NAME:</b>	FLAMMABLE LIQUID	<b>UN#:</b>	1987
<b>SUBSIDIARY CLASS:</b>	NONE				
<b>SHIPPING NAME:</b>	ALCOHOLS, N.O.S.(ETHANOL)				

**I. EMERGENCY AND FIRST AID PROCEDURE**

<b><u>INGESTION</u></b>	<ul style="list-style-type: none"> <li>Never give anything by mouth if victim is rapidly losing consciousness or is unconscious or convulsing.</li> <li>DO NOT INDUCE VOMITING.</li> <li>Have victim drink about 250ml (8fl. oz.) of water to dilute material in stomach.</li> <li>If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration.</li> <li>Seek medical assistance immediately.</li> </ul>
<b><u>SKIN</u></b>	<ul style="list-style-type: none"> <li>Flush contaminated area with water for at least 20 minutes.</li> <li>Remove contaminated clothing under running water.</li> <li>Completely decontaminate clothing before re-use, or discard.</li> <li>If irritation occurs seek medical attention.</li> </ul>
<b><u>INHALATION</u></b>	<ul style="list-style-type: none"> <li>Remove victim to fresh air.</li> <li>Artificial respiration should be given if breathing has stopped and cardiopulmonary resuscitation if heart has stopped.</li> <li>Oxygen may be given if necessary.</li> <li>Seek medical attention immediately.</li> </ul>
<b><u>EYES</u></b>	<ul style="list-style-type: none"> <li>Immediately flush eyes with water for at least 20 minutes, holding the eyelids open.</li> <li>Seek medical attention immediately.</li> </ul>
<b><u>NOTES TO PHYSICIAN</u></b>	<ul style="list-style-type: none"> <li>Symptoms of ethanol intoxication vary with the alcohol level of the blood. Mild alcohol intoxication occurs at blood levels between 0.05-0.15% and approximately 25% of individuals will show signs of intoxication at these levels. Above 0.15% the person is definitely under the influence of ethanol and 50-95% of individuals at this level are clinically intoxicated. Severe poisoning occurs when the blood ethanol level is 0.3-0.5%. Above 0.5% the individual will be comatose and death can occur.</li> <li>The unabsorbed ethanol should be removed by gastric lavage after intubating the patient to prevent aspiration.</li> <li>Avoid the use of depressant drugs or the excessive administration of fluids.</li> <li>This product contains 0.99 to 4.76% v/v of gasoline, a product which has shown carcinogenic properties in animal studies, and has been classified as an animal carcinogen by the International Agency for Research in Cancer.</li> </ul>

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## II. FIRE AND EXPLOSION HAZARD DATA

<b><u>FLASH POINT, °C</u></b>	<ul style="list-style-type: none"> <li>5 (Tag closed cup, ASTM D-56)</li> </ul>						
<b><u>OTHER IMPORTANT DATA</u></b>	COMPONENT	% V/V	FLAMMABLE LIMITS, % V/V		VAPOUR PRESSURE	VAPOUR DENSITY	AUTOIGNITION
			LOWER	UPPER	KPA AT 20°C	(AIR = 1)	POINT, °C
	(1) Gasoline	0.99 TO 4.76	1.4	7.6	Variable	3.4	N/A
	(2) Ethyl Alcohol	remainder	3.3	19.0	5.87	1.6	422
<b><u>EXTINGUISHING MEDIA</u></b>	<ul style="list-style-type: none"> <li>Apply alcohol-type or all-purpose-type foams by manufacturers' recommended techniques for large fires.</li> <li>Use carbon dioxide or dry chemical media for small fires.</li> <li>Water is generally unsuitable and may help to spread the fire.</li> </ul>						
<b><u>SPECIAL FIREFIGHTING PROCEDURES</u></b>	<ul style="list-style-type: none"> <li>Use water spray to cool fire-exposed containers and structures.</li> <li>Use water spray to disperse vapours; reignition is possible.</li> <li>Use self-contained breathing apparatus and protective clothing.</li> </ul>						
<b><u>UNUSUAL FIRE AND EXPLOSION HAZARDS</u></b>	<ul style="list-style-type: none"> <li>Vapours form from this product and may travel or be moved by air currents and ignited by pilot lights, other flames, sparks, heaters, electrical equipment, static discharges or other ignition sources at locations distant from handling point.</li> </ul>						

## III. IDENTIFICATION

<b><u>CHEMICAL NAME</u></b>	DENATURED ETHYL ALCOHOL GRADE NO. 2-F (ANHYDROUS)	<b><u>CHEMICAL FAMILY</u></b>	ALCOHOLS/PETROLEUM HYDROCARBON DISTILLATES
<b><u>FORMULA</u></b>	(1) Mixture (2) CH <sub>3</sub> - CH <sub>2</sub> - OH	<b><u>MOLECULAR WEIGHT</u></b>	(1) N/A (2) 46.07
<b><u>NOTE</u></b>	<ul style="list-style-type: none"> <li>Numbers refer to Section II.</li> </ul>		
<b><u>SYNONYMS</u></b>	<ul style="list-style-type: none"> <li>D.A.G. 2-F, CDA-20</li> </ul>		
<b><u>USE</u></b>	<ul style="list-style-type: none"> <li>Component of oxygenated fuel (fuel alcohol).</li> </ul>		

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**IV. PHYSICAL DATA**

BOILING POINT, °C at 760mm Hg	77.4
FREEZING POINT, °C	Not Available
DENSITY, kg/L @ 20°C	0.796 (max.)
COEFFICIENT OF WATER/OIL DISTRIBUTION	Ethanol separates from oil.
pH	Not applicable
DISTILLATION RANGE, °C	76.8 - 79.6
MISCIBILITY IN WATER	Partial (gasoline immiscible)
% VOLATILES BY VOLUME	100
EVAPORATION RATE (butyl acetate = 1)	1.6

**APPEARANCE AND ODOUR**

- Clear liquid with typical lower alcohol and gasoline odour.
- Odour thresholds for gasoline are less than 100 ppm (CCOHS, 1988), between 0.1 and 5100 ppm for ethanol.

**V. INGREDIENTS AND TOXICOLOGICAL DATA**

INGREDIENT	% V/V	CAS NO.	TLV, ppm	LC50, ppm/4h. RAT, INHAL.	LD50, mg/kg RAT, ORAL	LD50, mg/kg RABBIT, SKIN
(1) Gasoline	0.99 TO 4.76	8006-61-9	300	N/A	N/A	N/A
(2) Ethyl Alcohol	remainder	64-17-5	1000	31,623	7,060	20,000

**REFERENCES**

ACGIH (1988-1989), RTECS (1983).

**VI. WHMIS CLASSIFICATION AND SYNERGISTIC MATERIALS**

**WHMIS CLASSIFICATION**

- Flammable liquid, gasoline is classified as a carcinogen by IARC, eye irritant.

**SYNERGISTIC MATERIALS**

- Ethanol with carbon tetrachloride, chloroform, bromotrichloromethane, dimethylnitrosamine, and thioacetamide.

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**VII. HEALTH HAZARD DATA**

<b><u>INGESTION</u></b>	<ul style="list-style-type: none"> <li>• High concentrations of ethanol may cause dizziness, faintness, drowsiness, decreased awareness and responsiveness, euphoria, abdominal discomfort, nausea, vomiting, staggering gait, lack of coordination and coma.</li> <li>• Ingestion of gasoline is of low to moderate toxicity and is more toxic to children. Aspiration into lungs may occur and result in severe lung damage.</li> </ul>
<b><u>SKIN ABSORPTION</u></b>	<ul style="list-style-type: none"> <li>• Ethanol will have no adverse effects on normal skin.</li> <li>• Gasoline may be absorbed through the skin in toxic amounts, if large areas of skin are exposed.</li> </ul>
<b><u>INHALATION</u></b>	<ul style="list-style-type: none"> <li>• High vapour concentrations may cause a burning sensation in the throat and nose, stinging and watering in the eyes. At concentrations which cause irritation, dizziness, faintness, drowsiness, nausea and vomiting may also occur.</li> </ul>
<b><u>SKIN CONTACT</u></b>	<ul style="list-style-type: none"> <li>• No evidence of adverse effects from ethanol.</li> <li>• Repeated exposure to gasoline may lead to dermatitis.</li> </ul>
<b><u>EYE CONTACT</u></b>	<ul style="list-style-type: none"> <li>• Severe eye irritant.</li> <li>• Vapours can irritate eyes.</li> <li>• Eye damage from contact with liquid is reversible and proper treatment will result in healing within a few days.</li> <li>• Damage is usually mild to moderate conjunctivitis, seen mainly as redness of the conjunctiva.</li> </ul>
<b><u>EFFECT OF REPEATED OVEREXPOSURE</u></b>	<ul style="list-style-type: none"> <li>• Long term repeated oral exposure to ethanol may result in the development of progressive liver injury with fibrosis.</li> <li>• Long term exposure to methanol has been associated with headaches, giddiness, conjunctivitis, insomnia and impaired vision.</li> </ul>
<b><u>MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE</u></b>	<ul style="list-style-type: none"> <li>• Repeated exposure to ethanol may exacerbate liver injury produced from other causes.</li> </ul>
<b><u>OTHER EFFECTS OF OVEREXPOSURE</u></b>	<ul style="list-style-type: none"> <li>• Gasoline is considered an animal carcinogen by the International Study for Research in Cancer (IARC).</li> </ul>

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**VIII. REACTIVITY DATA**

<u>STABILITY</u>	<ul style="list-style-type: none"> <li>Stable</li> </ul>
<u>CONDITIONS TO AVOID</u>	<ul style="list-style-type: none"> <li>Sources of ignition</li> </ul>
<u>INCOMPATIBILITY</u>	<ul style="list-style-type: none"> <li>Oxidizing materials</li> </ul>
<u>HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS</u>	<ul style="list-style-type: none"> <li>Burning can produce carbon monoxide and/or carbon dioxide and/or formaldehyde.</li> </ul>
<u>HAZARDOUS POLYMERIZATION</u>	<ul style="list-style-type: none"> <li>Will not occur</li> </ul>
<u>CONDITIONS TO AVOID</u>	<ul style="list-style-type: none"> <li>None currently known</li> </ul>

**IX. SPILL OR LEAK PROCEDURES**

<u>SPILL</u>	<ul style="list-style-type: none"> <li>Contain spilled material.</li> <li>Provide adequate ventilation and protective equipment.</li> <li>Remove sources of heat, sparks or flames.</li> <li>Spill should be collected in suitable containers or absorbed on a suitable absorbent material for subsequent disposal.</li> </ul>
<u>WASTE DISPOSAL</u>	<ul style="list-style-type: none"> <li>Waste material should be disposed of in an approved incinerator or in a designated landfill site, in compliance with all federal, provincial and local government regulations.</li> </ul>

**X. SPECIAL PROTECTION INFORMATION**

<u>RESPIRATORY PROTECTION</u>	<ul style="list-style-type: none"> <li>Up to 1000 ppm, an approved organic vapour cartridge respirator can be used.</li> <li>For concentrations above 1000 ppm, an air-supplying respirator is recommended.</li> <li>The user should consult a respirator guide, such as the Canadian Standards Association's guide Z94.4-M1982.</li> </ul>
<u>VENTILATION</u>	<ul style="list-style-type: none"> <li>The ventilation system should be non-sparking, grounded and separate from other exhaust ventilation systems.</li> <li>Local ventilation is recommended when handling.</li> </ul>
<u>PROTECTIVE GLOVES</u>	<ul style="list-style-type: none"> <li>Neoprene, butyl or natural rubber.</li> </ul>
<u>EYE PROTECTION</u>	<ul style="list-style-type: none"> <li>Chemical resistant monogoggles when handling</li> </ul>
<u>OTHER PROTECTIVE EQUIPMENT</u>	<ul style="list-style-type: none"> <li>Eye bath, safety shower and other protective equipment as required.</li> </ul>

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### XI. SPECIAL PRECAUTIONS

<b><u>PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING</u></b>	<ul style="list-style-type: none"><li>• Keep away from heat, sparks and flames.</li><li>• Keep container closed when not in use.</li><li>• Use with adequate ventilation.</li><li>• Avoid breathing vapours.</li><li>• Avoid contact with eyes and skin.</li><li>• Wash exposed skin thoroughly after handling.</li><li>• Take precautions to prevent static electricity build-up when transferring contents.</li></ul>
<b><u>OTHER PRECAUTIONS</u></b>	<ul style="list-style-type: none"><li>• Good personal hygiene practices are suggested, such as abstaining from eating, drinking and smoking in the workplace.</li></ul>

### XII. MSDS PREPARATION

PREPARED BY	Alcohol Quality Assurance, Technical Services and Regulatory Affairs Department	
PHONE NUMBER	(905) 790-7500	DATE: September 1, 2008

GREENFIELD ETHANOL URGES EACH CUSTOMER OR RECIPIENT OF THIS MSDS TO STUDY IT CAREFULLY TO BECOME AWARE OF AND UNDERSTAND THE HAZARDS ASSOCIATED WITH THE PRODUCT. THE READER SHOULD CONSIDER CONSULTING REFERENCE WORKS OR INDIVIDUALS WHO ARE EXPERTS IN VENTILATION, TOXICOLOGY OR FIRE PREVENTION, AS NECESSARY OR APPROPRIATE TO USE AND UNDERSTAND THE DATA CONTAINED IN THIS MSDS.

TO PROMOTE SAFE USE AND HANDLING OF THIS PRODUCT, EACH CUSTOMER OR RECIPIENT SHOULD

- (1) NOTIFY EMPLOYEES, AGENTS, CONTRACTORS AND OTHERS WHO MAY USE THIS MATERIAL, OF THE INFORMATION IN THIS MSDS AND ANY OTHER INFORMATION REGARDING HAZARDS OR SAFETY,
- (2) FURNISH THIS SAME INFORMATION TO EACH CUSTOMER FOR THE PRODUCT, AND
- (3) REQUEST CUSTOMERS TO NOTIFY THEIR EMPLOYEES, CUSTOMERS, AND OTHER USERS OF THE PRODUCT OF THIS INFORMATION.