



MATERIAL SAFETY DATA SHEET

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

CHS Inc.
P.O. Box 64089
Mail station 525
St. Paul, MN 55164-0089

Transportation Emergency (CHEMTREC): 1-800-424-9300
Technical Information: 1-651-355-8443
MSDS Information: 1-651-355-8438

PRODUCT NAME: E-85 (Fuel Ethanol)
COMMON NAME: E-85
CHEMICAL NAME: Light Petroleum Distillate

MSDS: 0183-E85AL – Rev. B (12-23-03)
CHEMICAL FORMULA: Mixture
CHEMICAL FAMILY: Mixed Petroleum Hydrocarbon

Section 2 - COMPOSITION AND INFORMATION ON INGREDIENTS

INGREDIENTS	PERCENTAGES	PEL (OSHA)	TLV (ACGIH)	CAS #
<u>Major components</u>				
Gasoline	15	300 ppm TWA 500 ppm STEL	300 ppm TWA 500 ppm STEL	8006-61-9
Ethyl Alcohol (Ethanol)	85	1000 ppm TWA	1000 ppm TWA	64-17-5
<u>Ingredients</u>				
Toluene	< 5	100 ppm TWA 150 ppm STEL	50 ppm TWA	108-88-3
Xylene Isomers	< 5	100 ppm TWA 150 ppm STEL	100 ppm TWA 150 ppm STEL	1330-20-7
Benzene	< 2	1 ppm TWA 5 ppm STEL	0.5 ppm TWA 2.5 ppm STEL	71-43-2
1,2,4-Trimethylbenzene	< 2	25 ppm TWA	25 ppm TWA	95-63-6
Ethyl Benzene	< 1	100 ppm TWA 125 ppm STEL	100 ppm TWA 125 ppm STEL	100-41-4

(TWA) - Time Weighted Average is the employee's average airborne exposure in any 8-hour work shift of a 40-hour work week which shall not be exceeded.

(STEL) - Short Term Exposure Limit is the employee's 15-minute time weighted average exposure which shall not be exceeded at any time during a work day unless another time limit is specified.

Section 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Light golden brown liquid with gasoline odor - HIGHLY FLAMMABLE LIQUID.
DANGER! Contains Benzene. Cancer Hazard. Can cause kidney, liver and blood disorders.

OSHA HAZARD CLASS

Based on OSHA definitions, the following ingredients in this product are hazardous. The OSHA physical and health hazard categories are shown below. **Note: Cenex has not conducted specific toxicity tests on this product. Our hazard evaluation is based on information from similar products, the ingredients, technical literature, and/or professional experience.**

Gasoline - Flammable, toxic, irritant, target organ (CNS)
 Toluene - Flammable, toxic, irritant, target organ (CNS)
 Xylene - Flammable, toxic, irritant
 Ethyl Alcohol - Flammable, toxic, irritant, target organ (reproductive, CNS, skin)
 Benzene - Flammable, irritant, carcinogen, target organ (kidney, liver, blood)
 1,2,4-Trimethylbenzene - Flammable, toxic, irritant, target organ (CNS, blood)
 Ethylbenzene - Flammable, toxic, irritant

POTENTIAL HEALTH EFFECTS

ROUTES OF ENTRY: Inhalation, Dermal, Ingestion.

ACUTE EFFECTS OF OVER EXPOSURE:

Eyes - Slight to moderate eye irritation.

Skin - Moderately irritating; causes redness, drying of skin.

Inhalation - Irritating to mucous membranes and respiratory tract. Causes dizziness, irritation of eyes, nose and throat, signs of intoxications. Can act as a simple asphyxiant.

Ingestion - Burning of the throat and stomach, loss of consciousness, convulsions, cyanosis, congestion and capillary hemorrhaging of the lungs and internal organs. Possible pneumonia (if vomited), loss of consciousness, and death.

CHRONIC EFFECTS OF OVER EXPOSURE: Suspect carcinogen from long term exposure studies on laboratory animals. Recent studies with laboratory animals have shown that gasoline vapors caused kidney damage and kidney cancer in rats and liver cancer in mice.

Mouse skin painting studies have shown that petroleum middle distillates (boiling range of 100-700°F) can cause skin cancer when repeatedly applied and never washed from the animal's skin. The relative significance of this to the skin and the resulting skin effects (irritation, cell damage, etc.) may play a role in the tumorigenic response. Studies have shown that washing the animal's skin with soap and water between treatments greatly reduces the carcinogenic effect of some petroleum oils.

A few studies have indicated that workers exposed many years to high concentrations of benzene have a slightly higher incidence of leukemia. Benzene can also be toxic to the blood and blood-forming tissues. For additional information on employee monitoring, information and training, medical surveillance, methods of compliance, etc., refer to the OSHA benzene standard, CFR 1910.1028.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: May aggravate pre-existing dermatitis, respiratory illness, or other conditions which have the same symptoms or effects as stated above.

CARCINOGENICITY:

Ethyl Alcohol -	NTP: <u>ND</u>	IARC: <u>ND</u>	OSHA: <u>ND</u>
Benzene -	NTP: <u>Yes</u>	IARC: <u>Yes</u>	OSHA: <u>Yes</u>

Section 4 - FIRST AID MEASURES

EMERGENCY AND FIRST AID PROCEDURES:

Eye Contact - If material comes in contact with the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids until medical attention can be obtained.

Skin Contact - Remove contaminated clothing. Wash affected areas with soap and water. If irritation or redness develops, seek medical attention.

Inhalation - Move person away from source of exposure and into fresh air. If symptoms persist, seek immediate medical attention. Apply artificial respiration or cardiopulmonary resuscitation if not breathing. Get medical attention.

Ingestion - Never give anything by mouth to an unconscious person. Do **not** induce vomiting. Aspiration of material into the lungs due to vomiting can cause chemical pneumonitis which can be fatal. If spontaneous vomiting occurs, keep head below hips to prevent aspiration of liquid into lungs and monitor for breathing difficulty. Seek medical attention immediately. Keep victim warm and quiet.

Section 5 - FIRE - FIGHTING MEASURES

FLASH POINT: ND, <0°F

AUTO IGNITION TEMP: ND

FLAMMABLE LIMITS IN AIR
% BY VOLUME

<u>LOWER</u>	<u>UPPER</u>
ND	ND

EXTINGUISHING MEDIA: Dry Chemical, Foam, Carbon Dioxide (CO₂), Water (fog pattern).

SPECIAL FIRE FIGHTING PROCEDURES: Water may be ineffective on flames, but should be used to keep fire-exposed containers cool. Large fires, such as tank fires, should be fought with caution. If possible, pump the contents from the tank and keep adjoining structures cool and protect personnel. Avoid spreading burning liquid with water used for cooling purposes. Do not flush down public sewers. The use of a self-contained breathing apparatus and protective clothing is recommended for fire fighters. Avoid inhalation of vapors.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Highly volatile material. Flowing gasoline can be ignited by self-generated static electricity; containers should be bonded and grounded. Vapors may travel along the ground to a source of ignition (pilot light, heater, electric motor) some distance away. Containers, drums (even empty) can explode when heat (welding, cutting, etc.) is applied.

HAZARD RATINGS:	NFPA 704:	Health- <u>1</u>	Fire- <u>3</u>	Reactivity- <u>0</u>
	HMIS:	Health- <u>2</u>	Fire- <u>4</u>	Reactivity- <u>0</u>

Section 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO TAKE IF MATERIAL IS RELEASED OR SPILLED: Notify emergency response personnel as appropriate. If facility or operation has an "Oil or Hazardous Substance Contingency Plan", "Spill Prevention Control & Countermeasures (SPCC) Plan" or equivalent, activate its procedures. REMOVE ALL SOURCES OF IGNITION. Keep unnecessary people away; isolate hazard area and deny entry. Contain spill if possible. Small spills can be removed with inert absorbent. Dike area of large spill to prevent run-off to sewers, streams, etc. Ventilate area. Avoid breathing vapors. Use appropriate personal protective equipment during clean up. Contact fire authorities and notify appropriate Federal, State, and Local agencies.

Section 7 - HANDLING AND STORAGE

HANDLING AND STORING: Transport, handle and store in accordance with OSHA Regulation 29 CFR 1910.106, and applicable D.O.T. Regulations. Store in tightly closed containers in a dry cool place, away from sources of heat or ignition. Ground and bond all transfer and storage equipment and equip with self-closing valves, pressure vacuum bungs and flame arrestors. **Caution:** Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting, welding or other of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame, heat, sparks or other sources of ignition. Do not siphon gasoline by mouth.

WARNING: Danger! Contains Benzene. Cancer Hazard. Can cause kidney, liver and blood disorders. **Other:** Do not siphon gasoline by mouth. May cause irritation to eyes, skin and respiratory system. Avoid liquid, mist and vapor contact. Harmful or fatal if swallowed. Aspiration hazard, can enter lungs and cause damage. May cause irritation or be harmful if inhaled or absorbed through the skin. Flammable Liquid. Vapors may explode.

Section 8 - EXPOSURE CONTROL - PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide adequate ventilation to keep vapors below permissible concentrations.

RESPIRATORY EQUIPMENT: Use appropriate NIOSH-approved respiratory protection where atmospheric concentrations may exceed acceptable exposure limits. Self-contained breathing apparatus or supplied air respiratory protection required for entry into tanks, vessels, or other confined spaced containing gasoline.

EYE PROTECTION: Chemical type goggles or face shield where contact with liquid or mist may occur.

PROTECTIVE CLOTHING: Wear impervious clothing and gloves when contact with skin may occur.

OTHER (SAFETY SHOWERS, EYE WASH STATIONS, ETC.): Emergency eye wash station and safety shower where operations and exposure warrant. Loading, unloading, tank gauging, etc., remain upwind.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Light golden brown liquid

ODOR: Gasoline odor (odor threshold approximately 10 ppm).

BOILING POINT: ND @ 80°F

SPECIFIC GRAVITY (water=1): <.7890

VAPOR PRESSURE: ND @ 68°F

VAPOR DENSITY (air=1): ND

SOLUBLE IN WATER: Partially soluble

EVAPORATION RATE (ether=1): Slower

pH: N/D

Section 10 - STABILITY AND REACTIVITY

STABILITY

STABLE X (At room temperature and pressure. See handling and storage section)

UNSTABLE _____

INCOMPATIBILITY -

CONDITIONS TO AVOID: Heat, sparks, flame, build-up of static electricity, and other sources of ignition should be avoided.

MATERIALS TO AVOID: Strong oxidizing agents, halogens, strong acids, and alkalis.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, and hydrocarbons.

HAZARDOUS POLYMERIZATION: Has not been reported to occur under normal temperatures and pressures.

Section 11 - TOXICOLOGY INFORMATION

Note: CHS has not conducted specific toxicity tests on this product.

Section 12 - ECOLOGICAL INFORMATION

Note: CHS has not conducted specific ecological tests on this product.

Section 13 - DISPOSAL CONSIDERATION

WASTE DISPOSAL PROCEDURES: Recycle as much of the recoverable product as possible. Do not flush to drain or storm sewer or otherwise release to the environment. Dispose of non-recyclable material as a RCRA hazardous waste, complying with federal, state and local regulations. Note: Re-evaluation of this product may be required by the user at the time of disposal, since the product uses, transformations, mixtures and processes may change classification to non-hazardous or hazardous for reasons other than, or in addition to ignitable.

Section 14 - TRANSPORTATION

DOT PROPER SHIPPING NAME: Flammable Liquid, N.O.S.*
(Ethyl alcohol, Gasoline)

DOT HAZARD CLASS: 3

DOT IDENTIFICATION NUMBER: UN 1993

DOT EMER. RESPONSE GUIDE NO.: 128

(Formerly #27)

*EFFECTIVE 10/1/93 DOT's HM-181 changes how materials are classified. Proper Shipping Name-**Flammable Liquid, n.o.s.**; Hazard Class-**3**; UN/NA Identification #- **UN 1993**; **Packing Group II**; Placard-**FLAMMABLE LIQUID**

Section 15 - REGULATORY INFORMATION

This product contains the following toxic chemicals subject to the reporting requirements of SARA Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372:

<u>CAS Number</u>	<u>Chemical Name</u>	<u>Percent by Weight</u>
108-88-3	Toluene	Up to 5%
1330-20-7	Xylene	Up to 5%
71-43-2	Benzene	Up to 2%
95-63-6	1,2,4 Trimethylbenzene	Up to 2%
100-41-4	Ethylbenzene	Up to 1%

SARA SECTION 311-312 HAZARD CATEGORIES (40 CFR 370.2):

FIRE: Yes **SUDDEN RELEASE OF PRESSURE:** No **REACTIVE:** No **ACUTE:** Yes **CHRONIC:** Yes

Section 16 - OTHER INFORMATION

Prepared By: Hue Lam DATE: December 23, 2003

Title: Compliance Specialist Supersedes: January 31, 2003

Reason for Issue: company name change

THE INFORMATION CONTAINED IN THIS MSDS RELATES ONLY TO THE SPECIFIC MATERIAL IDENTIFIED. IT DOES NOT COVER USE OF THAT MATERIAL IN COMBINATION WITH ANY OTHER MATERIAL OR IN ANY PARTICULAR PROCESS. IN COMPLIANCE WITH 29 C.F.R. 1910.1200(g), CHS HAS PREPARED THIS MSDS IN SEGMENTS, WITH THE INTENT THAT THOSE SEGMENTS BE READ TOGETHER AS A WHOLE WITHOUT TEXTUAL OMISSIONS OR ALTERATIONS. CHS BELIEVES THE INFORMATION CONTAINED HEREIN TO BE ACCURATE, BUT MAKES NO REPRESENTATION, GUARANTEE, OR WARRANTY, EXPRESS OR IMPLIED, ABOUT THE ACCURACY, RELIABILITY, OR COMPLETENESS OF THE INFORMATION OR ABOUT THE FITNESS OF CONTENTS HEREIN FOR EITHER GENERAL OR PARTICULAR PURPOSES. PERSONS REVIEWING THIS MSDS SHOULD MAKE THEIR OWN DETERMINATION AS TO THE MATERIAL'S SUITABILITY AND COMPLETENESS FOR USE IN THEIR PARTICULAR APPLICATIONS.



Cenex® is a registered trademark of CHS Inc .