MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name: **SUNOCO E85-R**

Manufacturer Information:

Sunoco, Inc. (R&M)
1735 Market Street LL

Philadelphia, Pennsylvania, 19103-7583

Product Use:

Racing fuel
California Air Resources Board (CARB):
This product cannot be sold, offered for sale, supplied or offered for supply for motor vehicles in California except in competition racing vehicles. Legal For Use ONLY in Competition Racing Vehicles.
Not Legal For Use in Any Other Motor Vehicle.

Emergency Phone Numbers:

Chemtrec	(800) 424-9300
Sunoco Inc.	(800) 964-8861

Information:

Product Safety Information	(888) 567-3066

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No.	Amount (Vol%)
ETHYL ALCOHOL	64-17-5	85 - 87
ALKYLATE	64741-66-8	7 - 8
TOLUENE	108-88-3	8 - 8
BUTANE	106-97-8	0.2 - 0.3

EXPOSURE GUIDELINES (SEE SECTION 15 FOR ADDITIONAL EXPOSURE LIMITS)

	CAS No.	Governing Body	Exposure Limits		
ALKYLATE	64741-66-8	Sunoco	TWA	100	ppm
BUTANE	106-97-8	ACGIH	TWA	1000	ppm
ETHYL ALCOHOL	64-17-5	ACGIH	TWA	1000	ppm
ETHYL ALCOHOL	64-17-5	OSHA	TWA	1000	ppm
TOLUENE	108-88-3	NIOSH	STEL	150	ppm
TOLUENE	108-88-3	ACGIH	TWA	20	ppm
TOLUENE	108-88-3	OSHA	TWA	200	ppm

3. HAZARDS IDENTIFICATION

- **EMERGENCY OVERVIEW**
  Danger! Extremely flammable liquid and vapor. Static accumulator. May form an ignitable vapor/air mixture. Vapors may cause flash fire or explosion. Harmful or fatal if swallowed. May cause respiratory tract irritation. May cause eye irritation. May cause skin irritation. Contains material or materials that can cause birth defects.

  Hazards Ratings:
  Key: 0 = least, 1 = slight, 2 = moderate, 3 = high, 4 = extreme

	Health	Fire	Reactivity	PPI
NFPA	1	3	0	
HMIS	2	3	0	X

- **POTENTIAL HEALTH EFFECTS**

  - **PRE-EXISTING MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE**
    The following diseases or disorders may be aggravated by exposure to this product: nervous system, respiratory system, lung (asthma-like conditions),
  - **INHALATION**
    High concentrations may lead to central nervous system effects (drowsiness, dizziness, nausea, headaches, paralysis and loss of consciousness and even death). Excessive exposure to mists or vapors generated by heat may cause irritation to eyes, nose, throat, lungs and respiratory tract.

    LC50 (mg/l): no data
    LC50 (mg/m3): no data
    LC50 (ppm): no data

  - **SKIN**
    Skin absorption of the material is expected to be minimal. May cause mild to moderate skin irritation with prolonged and repeated contact.

    Draize Skin Score: no data Out of 8.0
    LD50 (mg/kg): no data

  - **EYES**
    Contact with the eye may cause moderate to severe irritation.
  - **INGESTION**
    Substance may be harmful if swallowed. May produce central nervous system effects, which includes dizziness, loss of balance and coordination, unconsciousness, coma and even death. Contains material or materials that can cause birth defects.
    LD50 (g/kg): no data

4. FIRST AID MEASURES

- **INHALATION**
  Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen and continue to monitor. Get immediate medical attention.
- **SKIN**
  Wash with soap and water for 20 minutes. Get medical attention if irritation develops or persists. Remove contaminated clothing. Wash clothing before reuse.
- **EYES**
  Flush eye with water for 20 minutes. Get medical attention. Obtain immediate medical treatment.
- **INGESTION**
  If swallowed, immediately contact a physician or Poison Control Center. Never give anything by mouth to an intoxicated, unconscious or convulsing person. Get immediate medical attention.

5. FIRE FIGHTING MEASURES

- **EXTINGUISHING MEDIA**
  Water spray; Alcohol resistant foam; Dry chemical; Carbon dioxide;
- **FIRE FIGHTING INSTRUCTIONS**
  Use water spray. Use water spray to cool fire exposed tanks and containers. Wear structural fire fighting gear. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
- **FLAMMABLE PROPERTIES**
  STATIC ACCUMULATOR. This liquid may form an ignitable vapor-air mixture in closed tanks or containers.

	Typical	Minimum	Maximum	Text Result	Units	Method
Flash Point				<-40 (ESTIMATED)	F	N/A
Autoignition Temperature				no data	F	N/A
Lower Explosion Limit				no data	%	N/A
Upper Explosion Limit				no data	%	N/A

6. ACCIDENTAL RELEASE MEASURES

Prevent ignition, stop leak and ventilate the area. Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust. Vapor can be controlled using a water fog. Water streams should not be directed to the liquid as this will cause the liquid to boil and generate more vapor. Use appropriate personal protective equipment as stated in Section 8 of this MSDS. Advise the Environmental Protection Agency (EPA) and appropriate state agencies, if required. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Vacuum or sweep up material and place in a disposal container. Do not use spark-generating metals for sweeping up spilled material.

7. HANDLING AND STORAGE

- **HANDLING**
  Use only in a well-ventilated area. Ground and bond containers when transferring material. Avoid breathing (dust, vapor, mist, gas). Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. STATIC ACCUMULATOR. This liquid may form an ignitable vapor-air mixture in closed tanks or containers. This liquid may accumulate static electricity even when transferred into properly grounded containers. Bonding and grounding may be insufficient to remove static electricity. Static electricity accumulation may be significantly increased by the presence of small quantities of water.Always bond receiving container to the fill pipe before and during loading, following NFPA-77 and/or API RP 2003 requirements. Automatic gauging devices and other floats in vessels or tanks which contain static accumulating liquids should be electrically bonded to the shell. Bonding and grounding alone may be inadequate to eliminate fire and explosion hazards associated with electrostatic charges. In addition to bonding and grounding, efforts to mitigate the hazards of an electrostatic discharge may include, but are not limited to, ventilation, inerting and/or reduction of transfer velocities. Always keep the nozzle in contact with the container throughout the loading process. Do not fill any portable containers in or on a vehicle. Special precautions, such as reduced loading rates and increased monitoring, must be observed during "switch loading" operations (i.e. loading this material in tanks or shipping compartments that previously contained middle distillates or similar products). Non-equilibrium conditions may increase the risks associated with static electricity such as tank and container filling, tank cleaning, sampling, gauging, loading, filtering, mixing, agitation, etc. Dissipation of electrostatic charges may be improved with the use of conductivity additives when used with other mitigating efforts, including bonding and grounding.
- **STORAGE**
  Keep away from heat, sparks, and flame. Keep container closed when not in use. NFPA class IB storage. Flash point is less than 73 degrees F and boiling point is greater than or equal to 100 degrees F. Consult NFPA and / or OSHA codes for additional information.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Consult With a Health and Safety Professional for Specific Selections

- **ENGINEERING CONTROLS**
  Use with adequate ventilation. Ventilation is normally required when handling or using this product to keep exposure to airborne contaminants below the exposure limit. Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product. Use spark-proof tools and explosion-proof equipment.
- **PERSONAL PROTECTION**

  - **EYE PROTECTION**
    Splash proof chemical goggles are recommended to protect against the splash of product.
  - **GLOVES or HAND PROTECTION**
    Protective gloves are recommended when prolonged skin contact cannot be avoided.
  - **RESPIRATORY PROTECTION**
    Concentration in air determines the level of respiratory protection needed. Use only NIOSH certified respiratory equipment. Half-mask air purifying respirator with organic vapor cartridges is acceptable for exposures to ten (10) times the exposure limit. Full-face air purifying respirator with organic vapor cartridges is acceptable for exposures to fifty (50) times the exposure limit. Exposure should not exceed the cartridge limit of 1000 ppm. Protection by air purifying respirators is limited. Use a positive pressure-demand full-face supplied air respirator or SCBA for exposures greater than fifty (50) times the exposure limit. If exposure is above the IDLH (Immediately Dangerous to Life and Health) or there is the possibility of an uncontrolled release, or exposure levels are unknown, then use a positive pressure-demand full-face supplied air respirator with escape bottle or SCBA. Wear a NIOSH-approved (or equivalent) full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.
  - **OTHER**
    Where splashing is possible, full chemically resistant protective clothing and boots are required. Remove contaminated clothing and wash before reuse. For non-fire emergencies, positive pressure SCBA and structural firefighter's protective clothing will provide only limited protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Property	Typical	Units	Text Result	Reference
Appearance		N/A	Clr Green Liq	
Boiling Point		F	80-140 IBP	
Bulk Density		lb/gal	no data	
Liquid Conductivity		pS/m	135000 etoh	
Melting Point		F	no data	
Molecular Weight		g/mole	no data	
Octanol/Water Coefficient		N/A	no data	
pH		N/A	no data	
Specific Gravity		N/A	no data	
Solubility In Water		wt %	85 - 87%	
Odor		N/A	MILD GASOLINE ODOR	
Odor Threshold		ppm	no data	
Vapor Pressure		mmHg	360-500	@ 20 C
Viscosity (F)		SUS	no data	
Viscosity (C)		CsT	no data	
% Volatile	100	wt %		

10. STABILITY AND REACTIVITY

- **STABILITY**
  Stable

- **CONDITIONS TO AVOID**
  Avoid heat, sparks and open flame.
- **INCOMPATIBILITY**
  Strong oxidizers
- **HAZARDOUS DECOMPOSITION PRODUCTS**
  Combustion may produce carbon monoxide, carbon dioxide and other asphyxiants.
- **HAZARDOUS POLYMERIZATION**
  Will not polymerize.

11. ECOLOGICAL INFORMATION

No data available

12. DISPOSAL CONSIDERATIONS

Follow federal, state and local regulations. This material is a RCRA hazardous waste. Do not flush material to drain or storm sewer. Incinerate material under controlled conditions. Contract to authorized disposal service.

13. TRANSPORT INFORMATION

Governing Body	Mode	Proper Shipping Name
DOT	Ground	Ethanol and Gasoline Mixture

Governing Body	Mode	Hazard Class	UN/NA No.	Label
DOT	Ground	3 (Flammable liquid)	UN 3475	Placard: Flammable Liquid

14. REGULATORY INFORMATION

Regulatory List	Component	CAS No.
ACGIH - Occupational Exposure Limits - Carcinogens	ETHYL ALCOHOL	64-17-5
ACGIH - Occupational Exposure Limits - Carcinogens	TOLUENE	108-88-3
ACGIH - Occupational Exposure Limits - TWAs	BUTANE	106-97-8
ACGIH - Occupational Exposure Limits - TWAs	TOLUENE	108-88-3
ACGIH - Short Term Exposure Limits	ETHYL ALCOHOL	64-17-5
CAA (Clean Air Act) - HON Rule - Organic HAPs	TOLUENE	108-88-3
CAA (Clean Air Act) - HON Rule - SOCMI Chemicals	TOLUENE	108-88-3
CAA (Clean Air Act) - VOCs in SOCMI	ETHYL ALCOHOL	64-17-5
CAA (Clean Air Act) - VOCs in SOCMI	TOLUENE	108-88-3
CAA - 1990 Hazardous Air Pollutants	TOLUENE	108-88-3
California - Prop. 65 - Developmental Toxicity	ETHYL ALCOHOL	64-17-5
California - Prop. 65 - Developmental Toxicity	TOLUENE	108-88-3
California - Prop. 65 - Reproductive - Female	TOLUENE	108-88-3
Canada - WHMIS - Ingredient Disclosure	BUTANE	106-97-8
Canada - WHMIS - Ingredient Disclosure	ETHYL ALCOHOL	64-17-5
Canada - WHMIS - Ingredient Disclosure	TOLUENE	108-88-3
CERCLA/SARA - Haz Substances and their RQs	TOLUENE	108-88-3
CERCLA/SARA - Section 313 - Emission Reporting	TOLUENE	108-88-3
CWA (Clean Water Act) - Hazardous Substances	TOLUENE	108-88-3
CWA (Clean Water Act) - Priority Pollutants	TOLUENE	108-88-3
CWA (Clean Water Act) - Toxic Pollutants	TOLUENE	108-88-3
DEA - List II Essential Chemicals	TOLUENE	108-88-3
IARC - Group 1 (carcinogenic to humans)	ETHYL ALCOHOL	64-17-5
IARC - Group 3 (not classifiable)	TOLUENE	108-88-3
Inventory - Australia (AICS)	ALKYLATE	64741-66-8
Inventory - Australia (AICS)	BUTANE	106-97-8
Inventory - Australia (AICS)	ETHYL ALCOHOL	64-17-5

Inventory - Australia (AICS)	TOLUENE	108-88-3
Inventory - Canada - Domestic Substances List	ALKYLATE	64741-66-8
Inventory - Canada - Domestic Substances List	BUTANE	106-97-8
Inventory - Canada - Domestic Substances List	ETHYL ALCOHOL	64-17-5
Inventory - Canada - Domestic Substances List	TOLUENE	108-88-3
Inventory - China	ALKYLATE	64741-66-8
Inventory - China	BUTANE	106-97-8
Inventory - China	ETHYL ALCOHOL	64-17-5
Inventory - China	TOLUENE	108-88-3
Inventory - European EINECS Inventory	ALKYLATE	64741-66-8
Inventory - European EINECS Inventory	BUTANE	106-97-8
Inventory - European EINECS Inventory	ETHYL ALCOHOL	64-17-5
Inventory - European EINECS Inventory	TOLUENE	108-88-3
Inventory - Japan - (ENCS)	BUTANE	106-97-8
Inventory - Japan - (ENCS)	ETHYL ALCOHOL	64-17-5
Inventory - Japan - (ENCS)	TOLUENE	108-88-3
Inventory - Korea - Existing and Evaluated	ALKYLATE	64741-66-8
Inventory - Korea - Existing and Evaluated	BUTANE	106-97-8
Inventory - Korea - Existing and Evaluated	ETHYL ALCOHOL	64-17-5
Inventory - Korea - Existing and Evaluated	TOLUENE	108-88-3
Inventory - New Zealand	ALKYLATE	64741-66-8
Inventory - New Zealand	BUTANE	106-97-8
Inventory - New Zealand	ETHYL ALCOHOL	64-17-5
Inventory - New Zealand	TOLUENE	108-88-3
Inventory - Philippines Inventory (PICCS)	ALKYLATE	64741-66-8
Inventory - Philippines Inventory (PICCS)	BUTANE	106-97-8
Inventory - Philippines Inventory (PICCS)	ETHYL ALCOHOL	64-17-5
Inventory - Philippines Inventory (PICCS)	TOLUENE	108-88-3
Inventory - TSCA - Sect. 8(b) Inventory	ALKYLATE	64741-66-8
Inventory - TSCA - Sect. 8(b) Inventory	BUTANE	106-97-8
Inventory - TSCA - Sect. 8(b) Inventory	ETHYL ALCOHOL	64-17-5
Inventory - TSCA - Sect. 8(b) Inventory	TOLUENE	108-88-3
Massachusetts - Right To Know List	BUTANE	106-97-8
Massachusetts - Right To Know List	ETHYL ALCOHOL	64-17-5
Massachusetts - Right To Know List	TOLUENE	108-88-3
New Jersey - Department of Health RTK List	BUTANE	106-97-8
New Jersey - Department of Health RTK List	ETHYL ALCOHOL	64-17-5
New Jersey - Department of Health RTK List	TOLUENE	108-88-3
New Jersey - Env Hazardous Substances List	BUTANE	106-97-8
New Jersey - Env Hazardous Substances List	TOLUENE	108-88-3
New Jersey - Special Hazardous Substances	BUTANE	106-97-8
New Jersey - Special Hazardous Substances	ETHYL ALCOHOL	64-17-5
New Jersey - Special Hazardous Substances	TOLUENE	108-88-3
OSHA - Final PELs - Ceiling Limits	TOLUENE	108-88-3
OSHA - Final PELs - Time Weighted Averages	ETHYL ALCOHOL	64-17-5
OSHA - Final PELs - Time Weighted Averages	TOLUENE	108-88-3
OSHA - Hazard Communication Carcinogens	ETHYL ALCOHOL	64-17-5
Pennsylvania - RTK (Right to Know) List	BUTANE	106-97-8
Pennsylvania - RTK (Right to Know) List	ETHYL ALCOHOL	64-17-5
Pennsylvania - RTK (Right to Know) List	TOLUENE	108-88-3
Pennsylvania - RTK - Environmental Hazard List	TOLUENE	108-88-3
U.S. - DOT - Hazardous Substances and RQs (App A)	TOLUENE	108-88-3

Title III Classifications Sections 311,312:

- Acute: **YES**
- Chronic: **YES**
- Fire: **YES**
- Reactivity: **NO**
- Sudden Release of Pressure: **NO**

15. OTHER INFORMATION

Warning! Completely denatured alcohol. Unfit for human consumption. Keep out of reach of children. Follow all MSDS/label precautions even after container is emptied because it may retain product residue.