MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name: **MO2X WOA**

Manufacturer Information:

Sunoco, Inc. (R&M)
Ten Penn Center
1801 Market Street
Philadelphia, Pennsylvania, 19103-1699

Product Use:

Racing fuel

Emergency Phone Numbers:

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

Information:

Product Safety Information	(610) 859-1120

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No.	Amount (Vol%)
ALKYLATE	64741-66-8	0 - 100
ISOPENTANE	78-78-4	0 - 30
TOLUENE	108-88-3	0 - 30
ETHYL ALCOHOL	64-17-5	0 - 15
TETRAETHYL LEAD	78-00-2	0 - 0.12

EXPOSURE GUIDELINES (SEE SECTION 15 FOR ADDITIONAL EXPOSURE LIMITS)

	CAS No.	Governing Body	Exposure Limits		
ALKYLATE	64741-66-8	Sunoco	TWA	100	ppm
ETHYL ALCOHOL	64-17-5	ACGIH	TWA	1000	ppm
ETHYL ALCOHOL	64-17-5	OSHA	TWA	1000	ppm
ISOPENTANE	78-78-4	Sunoco	STEL	750	ppm
ISOPENTANE	78-78-4	ACGIH	TWA	600	ppm
ISOPENTANE	78-78-4	Sunoco	TWA	600	ppm
TOLUENE	108-88-3	OSHA	C	0	ppm
TOLUENE	108-88-3	Sunoco	STEL	150	ppm
TOLUENE	108-88-3	NIOSH	STEL	150	ppm
TOLUENE	108-88-3	ACGIH	TWA	50	ppm
TOLUENE	108-88-3	OSHA	TWA	200	ppm
TETRAETHYL LEAD	78-00-2	ACGIH	TWA	0.1	mg/m3
TETRAETHYL LEAD	78-00-2	OSHA	TWA	0.075	mg/m3

3. HAZARDS IDENTIFICATION

- **EMERGENCY OVERVIEW**
  Danger! Extremely flammable liquid and vapor. Vapors may cause flash fire or explosion. Harmful or fatal if swallowed. Pulmonary aspiration hazard. After ingestion, may enter lungs and produce damage. Harmful if inhaled. May cause skin irritation. May cause eye irritation.

  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**
    The following diseases or disorders may be aggravated by exposure to this product: Skin; Eye; Blood forming organs; Nervous system, Respiratory system; Lung (asthma-like conditions); Cardiovascular system,
  - **INHALATION**
    High concentrations may lead to central nervous system effects (drowsiness, dizziness, nausea, headaches, paralysis and loss of consciousness and even death). May cause headaches and dizziness. Excessive exposure to mists or vapors generated by heat may cause irritation to eyes, nose, throat, lungs and respiratory tract. May cause serious disturbances of heart rhythm. Solvent "huffing/sniffing" (abuse) or intentional prolonged overexposure to high levels of vapors can produce abnormal behavior, convulsions, hallucinations, delerium, nervous system damage, serious disturbances of heart rhythm and sudden death.

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

  - **SKIN**
    Moderately irritating to the skin. May be absorbed through the skin in harmful amounts. Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

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

  - **EYES**
    Moderately irritating to the eyes.
  - **INGESTION**
    Product may be harmful or fatal if swallowed. Pulmonary aspiration hazard. After ingestion, may enter lungs and produce damage. Irritating to mouth, throat, and stomach.
    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**
  Remove contaminated clothing. Wash with soap and water. Get medical attention if irritation develops or persists. Wash clothing before reuse. Injection injuries may not appear serious at first but within a few hours, without proper treatment, the area will become swollen, discolored and extremely painful. See Section 15 for additional information.
- **EYES**
  Flush eye with water for 15 minutes. Get medical attention.
- **INGESTION**
  If swallowed, immediately contact a Poison Control Center. Get immediate medical attention. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

- **EXTINGUISHING MEDIA**
  Regular foam; Dry chemical; Carbon dioxide; Water spray;
- **FIRE FIGHTING INSTRUCTIONS**
  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

	Typical	Minimum	Maximum	Text Result	Units	Method
Flash Point				MINUS 40 EST'D	F	N/A
Autoignition Temperature				853 ESTIMATED	F	N/A
Lower Explosion Limit	1.5				%	N/A
Upper Explosion Limit	7.6				%	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. Keep personnel upwind from leak. 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.

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. Avoid contact with eyes. Wash thoroughly after handling. Never siphon by mouth.
- **STORAGE**
  Keep away from heat, sparks, and flame. Keep container closed when not in use. Consult NFPA and / or OSHA codes for additional information. NFPA class IB storage. Flash point is less than 73 degrees F and boiling point is greater than or equal to 100 degrees F. Outside or detached storage is preferred.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Consult With a Health and Safety Professional for Specific Selections

- **ENGINEERING CONTROLS**
  Use with adequate ventilation. Good general ventilation should be sufficient to control airborne levels. Use explosion-proof ventilation equipment.
- **PERSONAL PROTECTION**
  - **EYE PROTECTION**
    Use chemical splash goggles and face shield (ANSI Z87.1 or approved equivalent).
  - **GLOVES or HAND PROTECTION**
    The glove(s) listed below may provide protection against permeation. Gloves of other chemically resistant materials may not provide adequate protection. Protective gloves are recommended to protect against contact with product. Nitrile; Viton; Teflon;

- **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 (e.g., acid suit) and boots are required. The following materials are acceptable for use as protective clothing: Teflon; Nitrile; Viton; Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. 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	GREEN LIQUID	
Boiling Point		F	100-257	
Bulk Density		lb/gal	no data	
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	0.71	N/A		
Solubility In Water		wt %	NIL TO 15%	
Odor		N/A	GASOLINE ODOR.	
Odor Threshold		ppm	< 1	
Vapor Pressure		psia	5 - 16	
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. Avoid static discharge.
- **INCOMPATIBILITY**
  Strong oxidizers
- **HAZARDOUS DECOMPOSITION PRODUCTS**
  Combustion may produce carbon monoxide, carbon dioxide and other asphyxiants.
- **HAZARDOUS POLYMERIZATION**
  Will not polymerize.

11. ECOLOGICAL INFORMATION

Gasoline spills are toxic to fish and aquatic flora.

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. Contract to authorized disposal service.

13. TRANSPORT INFORMATION

Governing Body	Mode	Proper Shipping Name
DOT	Ground	Gasoline

Governing Body	Mode	Hazard Class	UN/NA No.	Label
DOT	Ground	3 (Flammable liquid)	1203	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	TETRAETHYL LEAD	78-00-2
ACGIH - Occupational Exposure Limits - Carcinogens	TOLUENE	108-88-3
ACGIH - Occupational Exposure Limits - TWAs	ETHYL ALCOHOL	64-17-5
ACGIH - Occupational Exposure Limits - TWAs	ISOPENTANE	78-78-4
ACGIH - Occupational Exposure Limits - TWAs	TETRAETHYL LEAD	78-00-2
ACGIH - Occupational Exposure Limits - TWAs	TOLUENE	108-88-3
ACGIH - Skin Absorption Designation	TETRAETHYL LEAD	78-00-2
ACGIH - Skin Absorption Designation	TOLUENE	108-88-3
CAA (Clean Air Act) - HON Rule - Organic HAPs	TOLUENE	108-88-3
CAA (Clean Air Act) - HON Rule - SOCMI Chemicals	TETRAETHYL LEAD	78-00-2
CAA (Clean Air Act) - HON Rule - SOCMI Chemicals	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
Canada - WHMIS - Ingredient Disclosure	ETHYL ALCOHOL	64-17-5
Canada - WHMIS - Ingredient Disclosure	TETRAETHYL LEAD	78-00-2
Canada - WHMIS - Ingredient Disclosure	TOLUENE	108-88-3
CERCLA/SARA - Haz Substances and their RQs	TETRAETHYL LEAD	78-00-2
CERCLA/SARA - Haz Substances and their RQs	TETRAETHYL LEAD	78-00-2
CERCLA/SARA - Haz Substances and their RQs	TETRAETHYL LEAD	78-00-2
CERCLA/SARA - Haz Substances and their RQs	TOLUENE	108-88-3
CERCLA/SARA - Haz Substances and their RQs	TOLUENE	108-88-3
CERCLA/SARA - Haz Substances and their RQs	TOLUENE	108-88-3
CERCLA/SARA - Section 302 EHS and TPQs	TETRAETHYL LEAD	78-00-2
CERCLA/SARA - Section 302 EHS and TPQs	TETRAETHYL LEAD	78-00-2
CERCLA/SARA - Section 302 EHS and TPQs	TETRAETHYL LEAD	78-00-2
CERCLA/SARA - Section 302 EHS EPCRA RQs	TETRAETHYL LEAD	78-00-2
CERCLA/SARA - Section 313 - Emission Reporting	TOLUENE	108-88-3
CWA (Clean Water Act) - Hazardous Substances	TETRAETHYL LEAD	78-00-2
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
IARC - Group 3 (not classifiable)	TETRAETHYL LEAD	78-00-2
IARC - Group 3 (not classifiable)	TOLUENE	108-88-3
Inventory - Australia (AICS)	ALKYLATE	64741-66-8
Inventory - Australia (AICS)	ETHYL ALCOHOL	64-17-5

Inventory - Australia (AICS)	ISOPENTANE	78-78-4
Inventory - Australia (AICS)	TETRAETHYL LEAD	78-00-2
Inventory - Australia (AICS)	TOLUENE	108-88-3
Inventory - Canada - Domestic Substances List	ALKYLATE	64741-66-8
Inventory - Canada - Domestic Substances List	ETHYL ALCOHOL	64-17-5
Inventory - Canada - Domestic Substances List	ISOPENTANE	78-78-4
Inventory - Canada - Domestic Substances List	TETRAETHYL LEAD	78-00-2
Inventory - Canada - Domestic Substances List	TOLUENE	108-88-3
Inventory - China	ALKYLATE	64741-66-8
Inventory - China	ETHYL ALCOHOL	64-17-5
Inventory - China	ISOPENTANE	78-78-4
Inventory - China	TETRAETHYL LEAD	78-00-2
Inventory - China	TOLUENE	108-88-3
Inventory - European EINECS Inventory	ALKYLATE	64741-66-8
Inventory - European EINECS Inventory	ETHYL ALCOHOL	64-17-5
Inventory - European EINECS Inventory	ISOPENTANE	78-78-4
Inventory - European EINECS Inventory	TETRAETHYL LEAD	78-00-2
Inventory - European EINECS Inventory	TOLUENE	108-88-3
Inventory - Japan - (ENCS)	ETHYL ALCOHOL	64-17-5
Inventory - Japan - (ENCS)	ISOPENTANE	78-78-4
Inventory - Japan - (ENCS)	TOLUENE	108-88-3
Inventory - Korea - Existing and Evaluated	ALKYLATE	64741-66-8
Inventory - Korea - Existing and Evaluated	ETHYL ALCOHOL	64-17-5
Inventory - Korea - Existing and Evaluated	ISOPENTANE	78-78-4
Inventory - Korea - Existing and Evaluated	TETRAETHYL LEAD	78-00-2
Inventory - Korea - Existing and Evaluated	TOLUENE	108-88-3
Inventory - Philippines Inventory (PICCS)	ALKYLATE	64741-66-8
Inventory - Philippines Inventory (PICCS)	ETHYL ALCOHOL	64-17-5
Inventory - Philippines Inventory (PICCS)	ISOPENTANE	78-78-4
Inventory - Philippines Inventory (PICCS)	TETRAETHYL LEAD	78-00-2
Inventory - Philippines Inventory (PICCS)	TOLUENE	108-88-3
Inventory - TSCA - Sect. 8(b) Inventory	ALKYLATE	64741-66-8
Inventory - TSCA - Sect. 8(b) Inventory	ETHYL ALCOHOL	64-17-5
Inventory - TSCA - Sect. 8(b) Inventory	ISOPENTANE	78-78-4
Inventory - TSCA - Sect. 8(b) Inventory	TETRAETHYL LEAD	78-00-2
Inventory - TSCA - Sect. 8(b) Inventory	TOLUENE	108-88-3
Massachusetts - Right To Know List	ETHYL ALCOHOL	64-17-5
Massachusetts - Right To Know List	ISOPENTANE	78-78-4
Massachusetts - Right To Know List	TETRAETHYL LEAD	78-00-2
Massachusetts - Right To Know List	TOLUENE	108-88-3
New Jersey - Department of Health RTK List	ETHYL ALCOHOL	64-17-5
New Jersey - Department of Health RTK List	ISOPENTANE	78-78-4
New Jersey - Department of Health RTK List	TETRAETHYL LEAD	78-00-2
New Jersey - Department of Health RTK List	TOLUENE	108-88-3
New Jersey - Env Hazardous Substances List	ISOPENTANE	78-78-4
New Jersey - Env Hazardous Substances List	TETRAETHYL LEAD	78-00-2
New Jersey - Env Hazardous Substances List	TOLUENE	108-88-3
New Jersey - Special Hazardous Substances	ETHYL ALCOHOL	64-17-5
New Jersey - Special Hazardous Substances	ISOPENTANE	78-78-4
New Jersey - Special Hazardous Substances	TETRAETHYL LEAD	78-00-2
New Jersey - Special Hazardous Substances	TOLUENE	108-88-3
OSHA - Final PELs - Ceiling Limits	TOLUENE	108-88-3
OSHA - Final PELs - Skin Notations	TETRAETHYL LEAD	78-00-2
OSHA - Final PELs - Time Weighted Averages	ETHYL ALCOHOL	64-17-5
OSHA - Final PELs - Time Weighted Averages	TOLUENE	108-88-3
Pennsylvania - RTK (Right to Know) List	ETHYL ALCOHOL	64-17-5
Pennsylvania - RTK (Right to Know) List	ISOPENTANE	78-78-4
Pennsylvania - RTK (Right to Know) List	TETRAETHYL LEAD	78-00-2
Pennsylvania - RTK (Right to Know) List	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

Follow all MSDS/label precautions even after container is emptied because it may retain product residue. Catecholamines and similar adrenergic drugs are generally contraindicated because of potential for increased sensitivity of the heart from hydrocarbon overexposure and subsequent ventricular fibrillation. EKG monitoring may be indicated and bronchodilators should be selected with care. Following injection, prompt debridement of the wound is necessary to minimize necrosis and tissue loss. Precautionary labeling for pumps, portable containers, and drums is required. A "hazardous when empty" pictogram and D.O.T. flammable liquid label are also required for drums. Details available upon request. Because benzene is present in this product above 0.1%, the Osha Standard for benzene is applicable to work locations upstream of final discharge from terminals. Consult 29CFR1910.1028 for details. Prolonged and repeated excessive exposures to benzene can result in blood disorders ranging from anemia to leukemia. Sun recommends that exposures to benzene be kept below 1.0 ppm for 8-hours; 5.0 ppm for 15-min. Normal service station operations are below these values. For use as motor fuel only. Do not use for any other purpose.