



Material Safety Data Sheet

MSDS ID NO.: 0178MAR019
Revision date: 12/07/2010

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product code: MR0295
Product name: Marathon Marine-Terrain 2-Cycle Engine Oil
Synonym: Marine-Terrain 2-Cycle Engine Oil; Marine Terrain TC-W3; Marathon 2 Cycle Oil
Chemical Family: Motor/Lube Oil
Formula: Mixture

Manufacturer:
Marathon Petroleum Company LP
539 South Main Street
Findlay OH 45840

Other information: 419-421-3070
Emergency telephone number: 877-627-5463

2. COMPOSITION/INFORMATION ON INGREDIENTS

2-Cycle Oil is a complex mixture of highly refined lubricating oil base stocks, 170 Solvent (Stoddard Solvent) and additives.

Product information:

Name	CAS Number	Weight %	ACGIH Exposure Limits:	OSHA - Vacated PELs - Time Weighted Ave	Other:
Marathon Marine-Terrain 2-Cycle Engine Oil	Mixture	100			

Component Information:

Name	CAS Number	Weight %	ACGIH Exposure Limits:	OSHA - Vacated PELs - Time Weighted Ave	Other:
Petroleum Distillates, Hydrotreated Heavy Paraffinic	64742-54-7	52-55			Mineral Oil Mist (MOM) =5 mg/m ³ TWA = 10 mg/m ³ STEL
Distillates Petroleum, Hydrotreated Light	64742-47-8	25-30			
Additives	Not specified	16-19			

Notes:

The manufacturer has voluntarily elected to reflect exposure limits contained in OSHA's 1989 air contaminants standard in its MSDS's, even though certain of those exposure limits were vacated in 1992.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

2-CYCLE OIL IS CONSIDERED TO BE A COMBUSTIBLE LIQUID PER THE OSHA HAZARD COMMUNICATION STANDARD AND SHOULD BE KEPT AWAY FROM HEAT, FLAME AND OTHER SOURCES OF IGNITION. IF SWALLOWED, THE VOLATILE COMPONENTS OF THIS PRODUCT MAY GET SUCKED INTO THE LUNGS (ASPIRATED) AND CAUSE LUNG DAMAGE OR EVEN DEATH.

Inhalation:

Exposure to high vapor concentrations may produce headache, giddiness, vertigo, and anesthetic stupor.

Ingestion:

Ingestion may result in nausea, vomiting, diarrhea and central nervous system depression. Aspiration (inadvertent suction) of liquid into the lungs must be avoided as even small quantities in the lungs can produce chemical pneumonitis, pulmonary edema/hemorrhage and even death.

Skin contact:

May cause mild skin irritation. Prolonged or repeated liquid contact can cause dermatitis, folliculitis or oil acne.

Eye contact:

Eye irritation may result from contact with the liquid or exposure to the vapor at concentrations above the TLV.

Carcinogenic Evaluation:

Product information:

Name	IARC Carcinogens:	NTP Carcinogens:	ACGIH - Carcinogens:	OSHA - Select Carcinogens:
Marathon Marine-Terrain 2-Cycle Engine Oil Mixture	NE			

Notes:

The International Agency for Research on Cancer (IARC) has determined that there is no evidence that severely solvent-refined oils are carcinogenic to experimental animals.

Component Information:

Name	IARC Carcinogens:	NTP Carcinogens:	ACGIH - Carcinogens:	OSHA - Select Carcinogens:
Petroleum Distillates, Hydrotreated Heavy Paraffinic 64742-54-7	Supplement 7 [1987], Monograph 33 [1984]			Present

Notes:

The International Agency for Research on Cancer (IARC) has determined that there is inadequate evidence for the carcinogenicity of aliphatic hydrocarbon solvents in humans. Therefore, aliphatic hydrocarbon solvents are not classifiable as to their carcinogenicity to humans (Group 3)

4. FIRST AID MEASURES

Eye Contact:

Flush eyes with large amounts of tepid water for at least 15 minutes. If symptoms or irritation occur, call a physician.

Skin Contact:

Wash with soap and large amounts of water. Remove contaminated clothing. If symptoms or irritation occur, call a physician.

Ingestion:

4. FIRST AID MEASURES

If swallowed, do not induce vomiting and do not give liquids. Immediately call a physician.

Inhalation:

If affected, move person to fresh air. If breathing is difficult, administer oxygen. If not breathing or if no heartbeat, give artificial respiration or cardiopulmonary resuscitation (CPR). Immediately call a physician. If symptoms or irritation occur with any exposure, call a physician.

NOTES TO PHYSICIAN:

No data available.

Medical Conditions Aggravated By Exposure:

Skin contact could aggravate an existing skin disorder or dermatitis condition.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media:

For small fires, Class B fire extinguishing media such as CO₂, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFF/ATC) can be used. Fire fighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Specific hazards:

This product has been determined to be a combustible liquid per the OSHA Hazard Communication Standard and should be handled accordingly. For additional fire related information, see NFPA 30 or the North American Emergency Response Guide 128.

Special protective equipment for firefighters:

Avoid using straight water streams. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Avoid excessive water spray application. Use water spray to cool exposed surfaces from as far a distance as possible. Keep run-off water out of sewers and water sources.

Flash point:

149 F, 65 C (PMCC)

Autoignition temperature:

No data available.

Flammable limits in air - lower (%):

1

Flammable limits in air - upper (%):

6

NFPA rating:

Health: 2

Flammability: 2

Instability: 0

Other: -

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Keep public away. Isolate and evacuate area. Shut off source if safe to do so. Advise authorities and National Response Center (800-424-8802) if the product has entered a water course or sewer. Advise local and state emergency services agencies, if appropriate. Contain liquid with sand or soil. Recover and return free product to proper containers. Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids.

7. HANDLING AND STORAGE

Handling:

Comply with all applicable EPA, OSHA, NFPA and consistent state and local requirements. Use appropriate grounding and bonding practices. Store in properly closed containers that are appropriately labeled and in a cool well-ventilated area. Do not cut, drill, grind or weld on empty containers since they may contain explosive residues. Do not pressurize or expose to heat, open flames, strong oxidizers or other sources of ignition.

Hydrocarbons are basically non-conductors of electricity and can become electrostatically charged during mixing, filtering, pumping at high flow rates or loading and transfer operations. If this charge reaches a sufficiently high level, sparks can form that may ignite the vapors of flammable liquids. Sudden release of hot organic chemical vapors or mists from process equipment operating under elevated temperature and pressure, or sudden ingress of air into vacuum equipment may result in ignitions without the presence of obvious ignition sources. Nozzle spouts must be kept in contact with the containers or tank during the entire filling operation.

Never siphon this product by mouth. Avoid repeated and prolonged skin contact. Exercise good personal hygiene including removal of soiled clothing and prompt washing with soap and water.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT

Engineering measures:	Local or general exhaust required when using at elevated temperatures that generate vapors or mists.
Respiratory protection:	Not required under normal conditions and adequate ventilation. Approved organic vapor chemical cartridge or supplied air respirators should be worn when significant vapors are generated. Observe respirator assigned protection factors (APFs) criteria cited in federal OSHA 1910.134. Self-contained breathing apparatus should be used for fire fighting.
Skin and body protection:	Use chemical resistant gloves such as neoprene, nitrile, or PVA to prevent prolonged or repeated skin contact.
Eye protection:	No special eye protection is normally required.
Hygiene measures:	No data available.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance:	Blue-green Liquid
Physical state (Solid/Liquid/Gas):	Liquid
Substance type (Pure/Mixture):	Mixture
Color:	Blue-Green
Odor:	Hydrocarbon
Molecular weight:	Not determined.
pH:	Neutral
Boiling point/range (5-95%):	315-398 F, 157.2-203.3 C
Melting point/range:	Not determined.
Decomposition temperature:	Not applicable.
Specific gravity:	0.874 @ 60 F
Density:	7.27 lbs/gal @ 60 F
Bulk density:	No data available.
Vapor density:	No data available.
Vapor pressure:	<2 mm Hg @ 68 F
Evaporation rate:	No data available.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Solubility:	<1%
Solubility in other solvents:	No data available.
Partition coefficient (n-octanol/water):	No data available.
VOC content(%):	10-25
Viscosity:	7.6 cSt @ 100 C 5,450 cP @ -25 C

10. STABILITY AND REACTIVITY

Stability:	The material is stable at 70 F, 760 mm pressure.
Polymerization:	Will not occur.
Hazardous decomposition products:	Carbon monoxide, carbon dioxide, aldehydes and hydrocarbons.
Materials to avoid:	Strong oxidizers such as nitrates, chlorates, peroxides.
Conditions to avoid:	Heat and open flames.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:

Product information:

Name	CAS Number	Inhalation:	Dermal:	Oral:
Marathon Marine-Terrain 2-Cycle Engine Oil	Mixture	LD50 = 2.18 to > 4 mg/l [Rat]	LD50 > 2 gm/kg [Rabbit]	LD50 > 2 gm/kg [Rat]

Toxicology Information:

Chronic skin painting studies with severely solvent refined neutral oils did not produce evidence of skin cancer in mice.

This product contains 10-20% Stoddard Solvent. Ninety day and two year inhalation studies of mineral spirits (stoddard solvent) were conducted in mice and rats at concentrations of 138, 275, 550, 1,100 and 2,200 mg/m³. In the 90 day studies, no significant toxicity was observed in rats except for nasal irritation at the highest dose and the previously noted effects in the male rat kidney. No significant toxicity was observed in mice except for slight effects in the spleen of female mice. No evidence of carcinogenic activity was observed in male mice or female rats chronically exposed to stoddard solvent. There was equivocal evidence that stoddard solvent produced benign liver tumors in female mice (an effect associated with increased body weight) and some evidence that stoddard solvent produced adrenal tumors in male rats. This latter effect is believed to be a secondary response to the kidney disease mediated by alpha-2μ-microglobulin. Some components of this product, have been shown to produce a species specific, sex hormonal dependent kidney lesion in male rats from repeated oral or inhalation exposure. Subsequent research has shown that the kidney damage develops via the formation of a alpha-2μ-globulin, a mechanism unique to the male rat. Humans do not form alpha-2μ-globulin, therefore, the kidney effects resulting from this mechanism are not relevant in humans.

Used motor oil applied to the skin of rabbits at doses of 8 ml/kg/day, 5 days/wk, for two weeks, produced significant weight loss and skin irritation but no mortality. Used motor oil was found to produce skin tumors in mice in lifetime skin painting studies. Solvent extracts of used motor oils were found to be positive in the Ames mutagenicity test.

12. ECOTOXICOLOGICAL INFORMATION

Mobility:

No data available.

Ecotoxicity:

No data available.

Bioaccumulation:

No data available.

Persistence/Biodegradation:

Water accommodated fractions (WAF) of highly refined base oils did not produce acute toxicity in fish (100-1000 mg/l), fresh water algae (500 mg/l) or daphnia (10,000 mg/l) in 48-96 hour LC50 studies. The 96 hour LC50 of a water accommodated fraction (WAF) of mineral spirits is >1,000 mg/l in rainbow trout.

Used motor and/or lube oils can be toxic to birds and fish.

13. DISPOSAL CONSIDERATIONS

Cleanup Considerations:

This material as supplied and by itself, when discarded or disposed of, is not an EPA RCRA hazardous waste according to federal regulations. This material could become a hazardous waste if mixed or contaminated with a hazardous waste or other substance(s). It is the responsibility of the user to determine if disposal material is hazardous according to federal, state and local regulations.

Don't pollute. Conserve resources. Send used product to recycling center. Dispose of cleanup materials in accordance with applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

49 CFR 172.101:

DOT:

Transport Information:	This material when transported via US commerce would be regulated by DOT Regulations.
Proper shipping name:	Petroleum Products, N.O.S.
UN/Identification No:	UN 1268
Hazard Class:	3
Packing group:	III
DOT reportable quantity (lbs):	Not applicable.

Proper shipping name: Petroleum Products, N.O.S.

UN/Identification No:
Hazard Class:
Packing group:

UN 1268
3
III

15. REGULATORY INFORMATION

US Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b):

This product and/or its components are listed on the TSCA Chemical Inventory.

OSHA Hazard Communication Standard:

This product has been evaluated and determined to be hazardous as defined in OSHA's Hazard Communication Standard.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302:

This product contains the following component(s) that have been listed on EPA's Extremely Hazardous Substance (EHS) List:

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
Petroleum Distillates, Hydrotreated Heavy Paraffinic	NA
Distillates Petroleum, Hydrotreated Light Additives	NA

SARA Section 304:

This product contains the following component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	CERCLA/SARA - Hazardous Substances and their Reportable Quantities
Petroleum Distillates, Hydrotreated Heavy Paraffinic	NA
Distillates Petroleum, Hydrotreated Light Additives	NA

SARA Section 311/312

The following EPA hazard categories apply to this product:

Acute Health Hazard
Fire Hazard

SARA Section 313:

This product contains the following component(s) that may be subject to reporting on the Toxic Release Inventory (TRI) From R:

Name	CERCLA/SARA 313 Emission reporting:
Petroleum Distillates, Hydrotreated Heavy Paraffinic	None
Distillates Petroleum, Hydrotreated Light Additives	None

State and Community Right-To-Know Regulations:

The following component(s) of this material are identified on the regulatory lists below:

Petroleum Distillates, Hydrotreated Heavy Paraffinic

Petroleum Distillates, Hydrotreated Heavy Paraffinic

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	carcinogen
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Distillates Petroleum, Hydrotreated Light

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Additives

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed

Petroleum Distillates, Hydrotreated Heavy Paraffinic
New Jersey - Special Hazardous Substances: Not Listed
New Jersey - Environmental Hazardous Substances List: Not Listed
Illinois - Toxic Air Contaminants Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances: Not Listed

Canadian Regulatory Information:

Canada DSL/NDSL Inventory: This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

NOTE: Not Applicable.

16. OTHER INFORMATION

Additional Information: No data available.

Prepared by: Mark S. Swanson, Manager, Toxicology and Product Safety

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End of Safety Data Sheet