1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product name: Marathon Maraflex Oil
Synonyms: Maraflex Oil; 100 Maraflex Oil
Chemical Family: Aromatic Oil
Formula: Mixture

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

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

2. COMPOSITION/ INFORMATION ON INGREDIENTS

Maroflex Oil is a complex mixture of heavy thermal cracked distillate (C15-C36) and heavy paraffinic distillate solvent extract (C20-C50) hydrocarbons. The CAS description of this stream states that it is likely to contain >5% 4 to 6-membered condensed ring polycyclic aromatic hydrocarbons.

Product information

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS Number</th>
<th>Weight %</th>
<th>ACGIH Exposure Limits:</th>
<th>OSHA - Vacated PELs - Time Weighted Ave</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marathon Maraflex Oil</td>
<td>Mixture</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Component Information

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS Number</th>
<th>Weight %</th>
<th>ACGIH Exposure Limits:</th>
<th>OSHA - Vacated PELs - Time Weighted Ave</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (Petroleum), Heavy Thermal Cracked</td>
<td>64741-81-7</td>
<td>0-75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extracts, Petroleum Heavy Paraffinic Distillate Solvent</td>
<td>64742-04-7</td>
<td>0-75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sulfur Compounds</td>
<td>Mixture</td>
<td>0.5-4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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
THIS PRODUCT IS A BROWN TO BLACK VISCOUS COLORED LIQUID. THIS PRODUCT CONTAINS POLYNUCLEAR AROMATIC HYDROCARBONS SOME OF WHICH HAVE PRODUCED CANCER IN LABORATORY ANIMALS AND HUMANS. REPEATED SKIN CONTACT TO SOME COMPONENTS OF THIS PRODUCT HAVE PRODUCED SYSTEMIC TOXICITY (INCLUDING LIVER DAMAGE) IN LABORATORY ANIMALS. VAPORS CAN PRODUCE EYE, SKIN, AND RESPIRATORY TRACT IRRITATION. THIS PRODUCT IS NOT A COMBUSTIBLE LIQUID PER THE OSHA HAZARD COMMUNICATION STANDARD, BUT WILL IGNITE AND BURN AT TEMPERATURES EXCEEDING THE FLASH POINT.

**OSHA WARNING LABEL:**

DANGER!

THIS PRODUCT CONTAINS POLYNUCLEAR AROMATIC HYDROCARBONS SOME OF WHICH HAVE PRODUCED CANCER IN LABORATORY ANIMALS AND HUMANS. REPEATED SKIN CONTACT TO SOME COMPONENTS IN THIS PRODUCT HAS PRODUCED SYSTEMIC TOXICITY (INCLUDING LIVER DAMAGE) IN LABORATORY ANIMALS.

**CONSUMER WARNING LABEL:**

A CONSUMER WARNING LABEL IS NOT APPLICABLE FOR THIS PRODUCT.

**Inhalation:** Exposure to vapor or mist may cause pulmonary irritation, dizziness, nausea and loss of consciousness.

**Ingestion:** Product is presumed to be slightly toxic (single dose). Significant ingestion could result in liver damage.

**Skin contact:** Prolonged and repeated liquid contact can cause defatting and drying of the skin and can lead to irritation and/or dermatitis. May cause sensitization by skin contact. Components of this product can cause liver damage if absorbed through the skin.

**Eye contact:** Liquid or vapor contact may result in slight eye irritation.

**Carcinogenic Evaluation:**

<table>
<thead>
<tr>
<th>Product Information</th>
<th>IARC Carcinogens</th>
<th>NTP Carcinogens</th>
<th>ACGIH - Carcinogens</th>
<th>OSHA - Select Carcinogens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marathon Maraflex Oil Mixture</td>
<td>NE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

The International Agency for Research on Cancer (IARC) has determined that there is sufficient evidence for the carcinogenicity of untreated vacuum distillates, acid-treated oils, and aromatic oils, including extracts from solvent treatment of distillates and the high boiling fraction of catalytically cracked oils in animals.

The International Agency for Research on Cancer (IARC) has also determined that there is sufficient evidence for the carcinogenicity in experimental animals of light and heavy vacuum distillates, of light and heavy catalytically cracked distillates and of cracked residues (including heavy thermocracked distillates/residues) derived from the refining of crude oil.

**Component Information**

**Notes:**

The International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) have concluded that certain polycyclic aromatic hydrocarbons, i.e. (benzo(a)pyrene, benz(a)anthracene, benzo(a)phenanthrene, indeno(1,2,3-cd)pyrene, benzo(j)fluoranthene, benzo(j,k,fluorine, benzo(g,h,i)perylene, and 5-methylchrysene are probably carcinogenic to humans (Group 2A and B).
4. FIRST AID MEASURES

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.

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

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

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

Medical conditions aggravated by exposure: Preexisting skin conditions, respiratory disorders, and impaired liver function may be aggravated by exposure to components of this product.

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 is not a combustible liquid per the OSHA Hazard Communication Standard, but will ignite and burn at temperatures exceeding the flash point.

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: 300-435 F; 167 C (Min)
Autoignition temperature: No data available.
Flammable limits in air - lower (%): No data available.
Flammable limits in air - upper (%): No data available.

NFPA rating:
Health: 2
Flammability: 1
Reactivity: 1
Other: -

HMIS classification:
Health: 2
Flammability: 1
Reactivity: 1
Special: *See Section 8 for guidance in selection of personal protective equipment.

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 substance has entered a watercourse or sewer. Notify local health and pollution control agencies, if appropriate. Contain liquid with sand or soil. Recover and return product to source.

7. HANDLING AND STORAGE

MSDS ID NO.: 0265MAR019
Product name: Marathon Maraflex Oil
Page 3 of 8
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 expose to heat, open flames, strong oxidizers or other sources of ignition. Do not cut, drill, grind or weld on empty containers since they may contain explosive residues. Stay upwind and vent open hatches before unloading.

Avoid 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 in an enclosed area or when there is inadequate ventilation.

Respiratory protection: Not required under normal conditions and adequate ventilation. Use atmosphere supplying respirators in confined spaces or when vapors exceed permissible limits; otherwise, an organic vapor respirator with pre-filter for fumes can be used. Self-contained breathing apparatus should be used for fire fighting.

Skin and body protection: Impermeable gloves (e.g., nitrile, viton, tyvek/saranex 23) to prevent skin contact. Chemical resistant apron or other protective clothing to avoid skin contact.

Eye protection: Goggles and faceshield when handling hot material.

Hygiene measures: Use mechanical ventilation equipment that is explosion-proof.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance: Brown To Black Viscous Liquid
Physical state (Solid/Liquid/Gas): Liquid
Substance type (Pure/Mixture): Mixture
Color: Black-Brown
Odor: Aromatic Sweet
Molecular weight: Not determined.
pH: Neutral
Boiling point/range (5-95%): 508-1017 F
Melting point/range: Not determined.
Decomposition temperature: Not applicable.
Specific gravity: 0.99-1.10
Density: 8.3-8.4 lbs/gal
Bulk density: No data available.
Vapor density: No data available.
Vapor pressure: Negligible
Evaporation rate: No data available.
Solubility: Not determined
Solubility in other solvents: No data available.
Partition coefficient (n-octanol/water): No data available.
VOC content(%): 453.4 cSt @ 40 C
Viscosity: 16.4 cSt @ 100 C

10. STABILITY AND REACTIVITY

Stability: The material is stable at 70 F, 760 mm pressure.
Polymerization: Will not occur.
Hazardous decomposition products: Combustion produces carbon monoxide, aldehydes, aromatic and other hydrocarbons.

Materials to avoid: Strong oxidizers such as nitrates, chlorates, peroxides.

Conditions to avoid: Sources of heat or ignition.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:

Product information

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS Number</th>
<th>Inhalation:</th>
<th>Dermal:</th>
<th>Oral:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marathon Maraflex Oil</td>
<td>Mixture</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Lifetime skin painting studies with refinery streams similar to this product and/or its major components have produced tumors following prolonged and repeated skin contact. Repeated dermal application of these materials (30 mg/kg/day for 13 weeks) resulted in anemia, liver degeneration and injury to bone marrow and lymphoid tissues. Treatment related mortality and body weight reduction was observed at 500 mg/kg. Repeated dermal application (125 mg/kg/day) of these materials to pregnant rats during gestation produced maternal and fetal toxicity. Increased resorptions were observed at doses of 30 mg/kg/day and above.

Lifetime skin painting studies with heavy distillate aromatic extracts (HDAE) have produced tumors following prolonged and repeated skin contact. HDAE was found to be positive in an Ames mutagenicity test. Repeated dermal application of HDAE (30 mg/kg/day for 13 weeks) resulted in anemia, liver degeneration and injury to bone marrow and lymphoid tissues. Treatment related mortality and body weight reduction was observed at 500 mg/kg. Repeated dermal application (125 mg/kg/day) to pregnant rats during gestation produced maternal and fetal toxicity. Increased resorptions were observed at doses of 30 mg/kg/day and above.

Summary of health effect data on Maraflex oil components:

This product contains polynuclear aromatic hydrocarbons (PAC) at a level of >0.1%. Some PACs that have been identified in this product such as benzo(a)pyrene, benz(a)anthracene and indeno(1,2,3-cd)pyrene have been shown to be carcinogenic in experimental animals. An increased risk of cancer has been observed in workers employed in the aluminum production, coal gasification, coal-tar pitch, coke production and iron and steel industries that had been occupationally exposed to polynuclear aromatic hydrocarbons. Since these kinds of PACs have been measured at high levels in air samples taken in these industries, The International Agency for Research on Cancer (IARC) has concluded that these PACs are probably carcinogenic to humans.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects: If spilled, hot product and/or the coating action of the oil components could harm plant life.

The 96 hour TLM for WAF (water accommodated fraction) of an aromatic extract is >1000 mg/l in fish or algae. 21 day exposures of 1000 mg/l WAF of an aromatic extract to Daphnia did not affect survival nor reproduction.

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.
14. TRANSPORT INFORMATION

49 CFR 172.101:

DOT:
- Transport Information: This material when transported via US commerce is NOT REGULATED by DOT regulations.
- DOT reportable quantity (lbs): Not applicable.

TDG (Canada):
- Regulated substances: Not applicable.

15. REGULATORY INFORMATION

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:

<table>
<thead>
<tr>
<th>Name</th>
<th>CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPOs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (Petroleum), Heavy Thermal Cracked</td>
<td>NA</td>
</tr>
<tr>
<td>Extracts, Petroleum Heavy Paraffinic Distillate Solvent</td>
<td>NA</td>
</tr>
<tr>
<td>Sulfur Compounds</td>
<td>NA</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Name</th>
<th>CERCLA/SARA - Hazardous Substances and their Reportable Quantities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (Petroleum), Heavy Thermal Cracked</td>
<td>NA</td>
</tr>
<tr>
<td>Extracts, Petroleum Heavy Paraffinic Distillate Solvent</td>
<td>NA</td>
</tr>
<tr>
<td>Sulfur Compounds</td>
<td>NA</td>
</tr>
</tbody>
</table>

SARA Section 311/312: The following EPA hazard categories apply to this product:
- Acute Health Hazard
- Chronic Health 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:
<table>
<thead>
<tr>
<th>Name</th>
<th>CERCLA/SARA 313 Emission reporting:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (Petroleum), Heavy Thermal Cracked</td>
<td>None</td>
</tr>
<tr>
<td>Extracts, Petroleum Heavy Paraffinic Distillate Solvent</td>
<td>None</td>
</tr>
<tr>
<td>Sulfur Compounds</td>
<td>None</td>
</tr>
</tbody>
</table>

**State and Community Right-To-Know Regulations:**
The following component(s) of this material are identified on the regulatory lists below:

**Distillates (Petroleum), Heavy Thermal Cracked**
- 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

**Extracts, Petroleum Heavy Paraffinic Distillate Solvent**
- 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: Carcinogen; Extraordinarily hazardous
- Florida substance List: Not Listed
- Rhode Island Right-To-Know: Not Listed
- Michigan critical materials register list: Not Listed
- Massachusetts Extraordinarily Hazardous Substances: Carcinogen; extraordinarily hazardous
- 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

**Sulfur Compounds**
- 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
Canadian Regulatory Information:

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

16. OTHER INFORMATION

Additional Information: No data available.

Prepared by: Craig M. Parker Manager, Toxicology And Product Safety

The information and recommendations contained herein are based upon tests believed to be reliable. However, Marathon Petroleum Company LLC (MPC) does not guarantee their accuracy or completeness nor shall any of this information constitute a warranty, whether expressed or implied, as to the safety of the goods, the merchantability of the goods, or the fitness of the goods for a particular purpose. Adjustment to conform to actual conditions of usage maybe required. MPC assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied.

End of Safety Data Sheet