**Emergency Overview**

**WARNING!**
Oil injected into the skin from high-pressure leaks in hydraulic systems can cause severe injury. Most damage occurs during the first few hours. Seek medical attention immediately. Surgical removal of oil may be necessary. Spills may create a slipping hazard.

**Physical State** Liquid.
**Color** Light green.
**Odor** Faint Odor

**SECTION 1: IDENTIFICATION**

**Trade Name** CITGO Aquamarine® Oil 32
**Product Number** 633560001
**CAS Number** Mixture.
**Product Family** Hydraulic Oil
**Synonyms** Hydraulic Oil;
SAP Product Code No.: 633560001

**SECTION 2: COMPOSITION**

<table>
<thead>
<tr>
<th>Component Name(s)</th>
<th>CAS Registry No.</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) White Mineral Oil</td>
<td>8042-47-5</td>
<td>95 - 100</td>
</tr>
<tr>
<td>2) Proprietary Ingredients</td>
<td>Proprietary Mixture</td>
<td>0 - 5</td>
</tr>
</tbody>
</table>

**SECTION 3: HAZARDS IDENTIFICATION**

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

**Major Route(s) of Entry** Skin contact.

**Signs and Symptoms of Acute Exposure**

**Inhalation** No significant adverse health effects are expected to occur upon short-term exposure.
**Eye Contact** No significant eye irritation is expected upon short-term exposure.
CITGO Aquamarine® Oil 32

Skin Contact  No significant irritation is expected to occur upon short-term exposure. Injection under the skin can cause inflammation, swelling and mild central nervous system depression. Injection of pressurized hydrocarbons can cause severe, permanent tissue damage. Initial symptoms may be minor. Injection of petroleum hydrocarbons requires immediate medical attention.

Ingestion  If swallowed, no significant adverse health effects are anticipated. Ingestion can cause a laxative effect. If aspirated into the lungs, liquid can cause lung damage.

Chronic Health Effects Summary  No significant signs or symptoms indicative of any adverse health effects are expected to occur.

Conditions Aggravated by Exposure  None known.

Target Organs  Contains material which causes damage to the following organs: skin.

Carcinogenic Potential  This product does not contain any components at concentrations above 0.1% which are considered carcinogenic by OSHA, IARC or NTP.

OSHA Hazard Classification is indicated by an “X” in the box adjacent to the hazard title. If no “X” is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

<table>
<thead>
<tr>
<th>OSHA Health Hazard Classification</th>
<th>OSHA Physical Hazard Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irritant</td>
<td>Toxic</td>
</tr>
<tr>
<td>Sensitizer</td>
<td>Highly Toxic</td>
</tr>
<tr>
<td>Corrosive</td>
<td>Carcinogenic</td>
</tr>
<tr>
<td>Compressible</td>
<td>Explosive</td>
</tr>
<tr>
<td>Compressed Gas</td>
<td>Oxidizer</td>
</tr>
<tr>
<td>Organic Peroxide</td>
<td>Water-reactive</td>
</tr>
<tr>
<td>Unstable</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

Inhalation  Move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If breathing is difficult, 100 percent humidified oxygen should be administered by a qualified individual. Seek medical attention immediately. Keep the affected individual warm and at rest.

Eye Contact  Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water while occasionally lifting and lowering eyelids. Seek medical attention if excessive tearing, redness, or pain persists.

Skin Contact  Remove contaminated shoes and clothing. Wipe off excess material. Wash exposed skin with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists. Thoroughly clean contaminated clothing before reuse. Discard contaminated leather goods. If material is injected under the skin, seek medical attention immediately.

Ingestion  Do not induce vomiting unless directed to by a physician. Do not give anything to drink unless directed to by a physician. Never give anything by mouth to a person who is not fully conscious. Seek medical attention immediately.

Notes to Physician  In the event of injection in underlying tissue, immediate treatment should include extensive incision, debridement and saline irrigation. Inadequate treatment can result in ischemia and gangrene. Early symptoms may be minimal.

SECTION 5: FIRE FIGHTING MEASURES

<table>
<thead>
<tr>
<th>NFPA Flammability Classification</th>
<th>NFPA Class-IIIB combustible material. Slightly combustible!</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Point Method</td>
<td>OPEN CUP: 193°C (379°F) (Cleveland.).</td>
</tr>
<tr>
<td>Lower Flammable Limit</td>
<td>No data.</td>
</tr>
<tr>
<td>Upper Flammable Limit</td>
<td>No data.</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>Not available.</td>
</tr>
</tbody>
</table>
CITGO Aquamarine® Oil 32

Hazardous Combustion Products
Carbon dioxide, carbon monoxide, smoke, fumes, and/or unburned hydrocarbons.

Special Properties
This material can burn but will not readily ignite. This material will release vapors when heated above the flash point temperature that can ignite when exposed to a source of ignition. In enclosed spaces, heated vapor can ignite with explosive force. Mists or sprays may burn at temperatures below the flash point.

Extinguishing Media
Use dry chemical, foam, Carbon Dioxide or water fog.

Fire Fighting Protective Clothing
Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

Do not touch damaged containers or spilled material unless wearing appropriate protective equipment. Slipping hazard; do not walk through spilled material. Stop leak if you can do so without risk. For small spills, absorb or cover with dry earth, sand, or other inert non-combustible absorbent material and place into waste containers for later disposal. Contain large spills to maximize product recovery or disposal. Prevent entry into waterways or sewers. In urban area, cleanup spill as soon as possible. In natural environments, seek cleanup advice from specialists to minimize physical habitat damage. This material will float on water. Absorbent pads and similar materials can be used. Comply with all laws and regulations.

SECTION 7: HANDLING AND STORAGE

Handling
Avoid water contamination and extreme temperatures to minimize product degradation. Empty containers may contain product residues that can ignite with explosive force. Do not pressurize, cut, weld, braze solder, drill, grind or expose containers to flames, sparks, heat or other potential ignition sources. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.

Storage
Keep container closed. Do not store with strong oxidizing agents. Do not store at temperatures above 120° F or in direct sunlight for extended periods of time. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers or waste residues of this product.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of mists and/or vapors below the recommended exposure limits (see below). An eye wash station and safety shower should be located near the work-station.

Personal Protective Equipment
Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.

Eye Protection
Safety glasses equipped with side shields should be adequate protection under most conditions of use. Wear goggles and/or face shield if splashing or spraying is anticipated. Wear goggles and face shield if material is heated above 125°F (51°C). Have suitable eye wash water available.
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Hand Protection
Use gloves constructed of chemical resistant materials such as neoprene or heavy nitrile rubber if frequent or prolonged contact is expected. Use heat-protective gloves when handling product at elevated temperatures.

Body Protection
Use clean and impervious protective clothing (e.g., neoprene or Tyvek®) if splashing or spraying conditions are present. Protective clothing may include long-sleeve outer garment, apron, or lab coat. If significant contact occurs, remove oil-contaminated clothing as soon as possible and promptly shower. Launder contaminated before reuse or discard. Wear heat protective boots and protective clothing when handling material at elevated temperatures.

Respiratory Protection
Vaporization or misting is not expected at ambient temperatures. Therefore, the need for respiratory protection is not anticipated under normal use conditions and with adequate ventilation. If elevated airborne concentrations above applicable workplace exposure levels are anticipated, a NIOSH-approved organic vapor respirator equipped with a dust/mist prefilter should be used. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).

General Comments
Use good personal hygiene practices. Wash hands and other exposed skin areas with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities, or leaving work. DO NOT use gasoline, kerosene, solvents or harsh abrasives as skin cleaners. Since specific exposure standards/control limits have not been established for this product, the "Oil Mist, Mineral" exposure limits shown below are suggested as minimum control guidelines.

Occupational Exposure Guidelines

<table>
<thead>
<tr>
<th>Substance</th>
<th>Applicable Workplace Exposure Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Oil Mist, Mineral</td>
<td>ACGIH (United States).</td>
</tr>
<tr>
<td></td>
<td>TWA: 5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>STEL: 10 mg/m³</td>
</tr>
<tr>
<td></td>
<td>OSHA (United States).</td>
</tr>
<tr>
<td></td>
<td>TWA: 5 mg/m³</td>
</tr>
</tbody>
</table>

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Color</th>
<th>Odor</th>
<th>Specific Gravity</th>
<th>pH</th>
<th>Vapor Density</th>
<th>Melting/Freezing Point</th>
<th>Boiling Point/Range</th>
<th>Viscosity (cSt @ 40°C)</th>
<th>Solubility in Water</th>
<th>Additional Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid</td>
<td>Light green</td>
<td>Faint Odor</td>
<td>0.86 (Water = 1)</td>
<td>Not Applicable.</td>
<td>&gt;1 (Air = 1)</td>
<td>Not available.</td>
<td>Not available.</td>
<td>32</td>
<td>Very slightly soluble in hot water. Insoluble in cold water.</td>
<td>Gravity, °API (ASTM D287) = 32.6 @ 60° F&lt;br&gt;Density = 7.19 Lbs/gal.&lt;br&gt;Viscosity (ASTM D2161) = 165 SUS @ 100° F</td>
</tr>
</tbody>
</table>

SECTION 10: STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Chemical Stability</th>
<th>Hazardous Polymerization</th>
<th>Conditions to Avoid</th>
<th>Materials Incompatibility</th>
<th>Hazardous Decomposition Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stable</td>
<td>Not expected to occur</td>
<td>Keep away from heat and flame.</td>
<td>Strong oxidizers.</td>
<td>No additional hazardous decomposition products were identified other than the combustion products identified in Section 5 of this MSDS.</td>
</tr>
</tbody>
</table>
SECTION 11: TOXICOLOGICAL INFORMATION

For other health-related information, refer to the Emergency Overview on Page 1 and the Hazards Identification in Section 3 of this MSDS.

Toxicity Data

White Mineral Oil:
ORAL (LD50): Acute: >5000 mg/kg [Rat].
DERMAL (LD50): Acute: >2000 mg/kg [Rabbit].

White Mineral Oil:
Low-viscosity and High-viscosity White Mineral Oils:
ORAL (LD50), Acute: >5000 mg/kg [Rat].
DERMAL (LD50), Acute: >2000 mg/kg [Rabbit].
DRAIZE EYE, Acute: Non-irritating [Rabbit].
DRAIZE DERMAL, Acute: Non-irritating [Rabbit].
BUEHLER, Acute: Non-sensitizing [Guinea Pig].
28-Day DERMAL, Sub-Chronic: Non-irritating [Rabbit].
104-Week DERMAL, Chronic: No skin tumors at site of application [Mouse].
MUTAGENICITY:
  Modified Ames Assay: Negative [Salmonella typhimurium].
  in-vitro Lymphoma Assay: Negative or no toxicity [Mouse].

Lifetime mouse skin painting studies indicated that white mineral oils are not mutagenic or carcinogenic. Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipid granuloma formation and lipid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects. In long term studies (up to two years) no carcinogenic effects have been reported in any animal species tested.

Hydraulic Oils:
Repeated or prolonged skin contact with certain hydraulic oils can cause mild skin irritation characterized by drying, cracking (dermatitis) or oil acne. Injection under the skin, in muscle or into the bloodstream can cause irritation, inflammation, swelling, fever, and systemic effects, including mild central nervous system depression. Injection of pressurized hydrocarbons can cause severe, permanent tissue damage.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Based on 96-hr acute toxicity tests, the median lethal concentration (LC50) for this product is estimated to be 42.1 WAF (water accommodated fraction) for rainbow trout (Oncorhynchus myiss) and >100% WAF for fathead minnows (Pimephales promelas). Based on these values, releases to aquatic environments would present a low risk to fish.

Environmental Fate

Plants and animals may experience harmful or fatal effects when coated with petroleum-based products. Petroleum-based (mineral) lube oils will normally float on water. In stagnant or slow-flowing waterways, an oil layer can cover a large surface area. As a result, this oil layer might limit or eliminate natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway might be enough to cause a fish kill or create an anaerobic environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition.
CITGO Aquamarine® Oil 32

Conditions of use may cause this material to become a "hazardous waste", as defined by federal or state regulations. It is the responsibility of the user to determine if the material is a "hazardous waste" at the time of disposal. Transportation, treatment, storage, and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR 260 through 40 CFR 271). State and/or local regulations may be more restrictive. Contact the RCRA/Superfund Hotline at (800) 424-9346 or your regional US EPA office for guidance concerning case specific disposal issues. Empty drums and pails retain residue. DO NOT pressurize, cut, weld, braze, solder, drill, grind, or expose this product's empty container to heat, flame, or other ignition sources. DO NOT attempt to clean it. Empty drums and pails should be drained completely, properly bunged or sealed, and promptly sent to a reconditioner.

SECTION 14: TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>DOT Status</th>
<th>Not a U.S. Department of Transportation regulated material.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>Not regulated.</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>Not regulated.</td>
</tr>
<tr>
<td>Packing Group(s)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>UN/NA ID</td>
<td>Not regulated.</td>
</tr>
<tr>
<td>Reportable Quantity</td>
<td>A Reportable Quantity (RQ) has not been established for this material.</td>
</tr>
<tr>
<td>Placards</td>
<td>Not regulated.</td>
</tr>
<tr>
<td>Emergency Response Guide No.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>HAZMAT STCC No.</td>
<td>Not assigned.</td>
</tr>
<tr>
<td>MARPOL III Status</td>
<td>Not a DOT &quot;Marine Pollutant&quot; per 49 CFR 171.8.</td>
</tr>
</tbody>
</table>

SECTION 15: REGULATORY INFORMATION

<table>
<thead>
<tr>
<th>TSCA Inventory</th>
<th>This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARA 302/304</td>
<td>The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for “Extremely Hazardous Substances” listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.</td>
</tr>
<tr>
<td>SARA 311/312</td>
<td>The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by “Hazard Category” as defined in 40 CFR 370.2. This material would be classified under the following hazard categories: No SARA 311/312 hazard categories identified.</td>
</tr>
<tr>
<td>SARA 313</td>
<td>This product contains the following components in concentrations above de minimis levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 of SARA: No components were identified.</td>
</tr>
<tr>
<td>CERCLA</td>
<td>The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of “hazardous substances” equal to or greater than the reportable quantities (RQ’s) listed in 40 CFR 302.4. As defined by CERCLA, the term “hazardous substance” does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. Chemical substances present in this product or refinery stream that may be subject to this statute are: None Identified</td>
</tr>
<tr>
<td>CWA</td>
<td>This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA’s National Response Center at (800) 424-8802.</td>
</tr>
<tr>
<td>California Proposition 65</td>
<td>This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health &amp; Safety Code Section 25249.5): None identified.</td>
</tr>
</tbody>
</table>
CITGO Aquamarine® Oil 32

New Jersey Right-to-Know Label
Petroleum Oil (Hydraulic Oil)

Additional Regulatory Remarks
No additional regulatory remarks.

SECTION 16: OTHER INFORMATION

Refer to the top of Page 1 for the HMIS and NFPA Hazard Ratings for this product.

REVISION INFORMATION

Version Number 1.00
Revision Date 07/24/2001
Print Date Printed on 07/24/2001.

ABBREVIATIONS

AP = Approximately  EQ = Equal  > = Greater Than  < = Less Than  NA = Not Applicable  ND = No Data  NE = Not Established
ACGIH = American Conference of Governmental Industrial Hygienists  AIHA = American Industrial Hygiene Association
IARC = International Agency for Research on Cancer  NTP = National Toxicology Program
NIOSH = National Institute of Occupational Safety and Health  OSHA = Occupational Safety and Health Administration
NPCA = National Paint and Coating Manufacturers Association  HMIS = Hazardous Materials Information System
NFPA = National Fire Protection Association  EPA = Environmental Protection Agency

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* * * * * END OF MSDS * * * * *