1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

<table>
<thead>
<tr>
<th>Ashland</th>
<th>Regulatory Information Number</th>
<th>1-800-325-3751</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.O. Box 2219</td>
<td>Telephone</td>
<td>614-790-3333</td>
</tr>
<tr>
<td>Columbus, OH 43216</td>
<td>Emergency telephone number</td>
<td>1-800-ASHLAND (1-800-274-5263)</td>
</tr>
</tbody>
</table>

Product name: VALVOLINE® DEX/MERC® AUTOMATIC TRANSMISSION FLUID

Product code: VV351

Product Use Description: No data

2. HAZARDS IDENTIFICATION

**Emergency Overview**

Appearance: liquid, red

**CAUTION!** PROLONGED OR REPEATED CONTACT MAY DRY THE SKIN AND CAUSE IRRITATION AND BURNS.

**Potential Health Effects**

**Exposure routes**

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

**Eye contact**

May cause mild eye irritation. Symptoms include stinging, tearing, and redness.

**Skin contact**

May cause mild skin irritation. Symptoms may include redness and burning of skin. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, skin burns, and other skin damage.

**Ingestion**

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful.
Inhalation

It is possible to breathe this material under certain conditions of handling and use (for example, during heating, spraying, or stirring). Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: Skin, lung (for example, asthma-like conditions)

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: acne, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways)

Target Organs

No data

Carcinogenicity

This material is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA).

Reproductive hazard

There are no data available for assessing risk to the fetus from maternal exposure to this material.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Components</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEAVY PARAFFINIC DISTILLATE</td>
<td>64742-54-7</td>
<td>&gt;=90-&lt;=100%</td>
</tr>
<tr>
<td>LUBRICANT ADDITIVE</td>
<td></td>
<td>&gt;=10-&lt;15%</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES
Eyes
If symptoms develop, move individual away from exposure and into fresh air. Flush eyes gently with water while holding eyelids apart. If symptoms persist or there is any visual difficulty, seek medical attention.

Skin
Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion
Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation
If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician
Hazard: Acute aspiration of large amounts of oil-laden material may produce a serious aspiration pneumonia. Patients who aspirate these oils should be followed for the development of long-term sequelae. Repeated aspiration of small quantities of mineral oil can produce chronic inflammation of the lungs (i.e. lipoid pneumonia) that may progress to pulmonary fibrosis. Symptoms are often subtle and radiological changes appear worse than clinical abnormalities. Occasionally, persistent cough, irritation of the upper respiratory tract, shortness of breath with exertion, fever, and bloody sputum occur. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities.

Treatment: No information available.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Dry chemical, Carbon dioxide (CO2), Water spray

Hazardous combustion products
carbon dioxide and carbon monoxide, Hydrocarbons
Precautions for fire-fighting

Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). DO NOT direct a solid stream of water or foam into hot, burning pools of liquid since this may cause frothing and increase fire intensity. Frothing can be violent and possibly endanger any firefighter standing too close to the burning liquid. Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes.

NFPA Flammable and Combustible Liquids Classification
Combustible Liquid Class IIIB

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
For personal protection see section 8. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental precautions
Prevent spreading over a wide area (e.g. by containment or oil barriers). Do not let product enter drains. Do not flush into surface water or sanitary sewer system.

Methods for cleaning up
Keep in suitable, closed containers for disposal. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Other information
Comply with all applicable federal, state, and local regulations.

7. HANDLING AND STORAGE

Handling
Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

Storage
Store in a cool, dry, ventilated area.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

<table>
<thead>
<tr>
<th>LUBRICANT ADDITIVE</th>
<th>Recommended exposure limit (REL):</th>
<th>5 mg/m³</th>
<th>Mist.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIOSH</td>
<td>Short term exposure limit</td>
<td>10 mg/m³</td>
<td>Mist.</td>
</tr>
<tr>
<td>OSHA Z1</td>
<td>Permissible exposure limit</td>
<td>5 mg/m³</td>
<td>Mist.</td>
</tr>
<tr>
<td>ACGIH</td>
<td>time weighted average</td>
<td>5 mg/m³</td>
<td>Mist.</td>
</tr>
<tr>
<td>ACGIH</td>
<td>Short term exposure limit</td>
<td>10 mg/m³</td>
<td>Mist.</td>
</tr>
<tr>
<td>ACGIH NIC</td>
<td>time weighted average</td>
<td>0.2 mg/m³</td>
<td>Inhalable fraction.</td>
</tr>
</tbody>
</table>

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection

Not required under normal conditions of use. Wear splash-proof safety goggles if material could be misted or splashed into eyes.

Skin and body protection

Wear normal work clothing including long pants, long-sleeved shirts and foot covering to prevent direct contact of the product with the skin. Launder clothing before reuse. If skin irritation develops, contact your facility health and safety professional or your local safety equipment supplier to determine the proper personal protective equipment for your use. Wear resistant gloves (consult your safety equipment supplier).

Respiratory protection

A NIOSH-approved air-purifying respirator with an appropriate cartridge and/or filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits (if applicable) or if overexposure has otherwise been determined. Protection provided by air-
purifying respirators is limited. Use a positive pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are not known or any other circumstances where an air-purifying respirator may not provide adequate protection.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
</tr>
<tr>
<td>Form</td>
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</tr>
<tr>
<td>Colour</td>
<td>red</td>
</tr>
<tr>
<td>Odour</td>
<td>hydrocarbon-like</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
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</tr>
<tr>
<td>Melting point/range</td>
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</tr>
<tr>
<td>Sublimation point</td>
<td>no data available</td>
</tr>
<tr>
<td>pH</td>
<td>no data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 390 °F / &gt; 199 °C Cleveland open cup</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>no data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>(&gt;1) Ethyl Ether</td>
</tr>
<tr>
<td>Lower explosion limit/Upper explosion limit</td>
<td>1 %(V) / 6 %(V) Calculated Explosive Limit</td>
</tr>
<tr>
<td>Particle size</td>
<td>no data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>0.013 hPa @ 70.00 °F / 21.11 °C Calculated Vapor Pressure</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>no data available</td>
</tr>
<tr>
<td>Density</td>
<td>0.862 g/cm³ @ 60.01 °F / 15.56 °C</td>
</tr>
<tr>
<td></td>
<td>7.29 lb/gal @ 60.00 °F / 15.56 °C</td>
</tr>
<tr>
<td>Bulk density</td>
<td>No data</td>
</tr>
<tr>
<td>Water solubility</td>
<td>no data available</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>no data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>no data available</td>
</tr>
<tr>
<td>log Pow</td>
<td>no data available</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>no data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>no data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>35.8 mm²/s</td>
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<tr>
<td>Solids in Solution</td>
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<tr>
<td>Decomposition temperature</td>
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<tr>
<td>Burning number</td>
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<tr>
<td>Dust explosion constant</td>
<td>no data available</td>
</tr>
<tr>
<td>Minimum ignition energy</td>
<td>no data available</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Stability
  Stable.

Conditions to avoid
  excessive heat

Incompatible products
  Strong oxidizing agents

Hazardous decomposition products
  carbon dioxide and carbon monoxide, Hydrocarbons

Hazardous reactions
  Product will not undergo hazardous polymerization.

Thermal decomposition
  No data

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity
HEAVY PARAFFINIC DISTILLATE : LD 50 Rat: > 15 g/kg
LUBRICANT ADDITIVE : no data available

Acute inhalation toxicity
HEAVY PARAFFINIC DISTILLATE : no data available
LUBRICANT ADDITIVE : no data available

Acute dermal toxicity
HEAVY PARAFFINIC DISTILLATE : LD 50
  Rabbit: > 5 g/kg
LUBRICANT ADDITIVE : no data available
12. ECOLOGICAL INFORMATION

Biodegradability
HEAVY PARAFFINIC DISTILLATE : no data available
LUBRICANT ADDITIVE : no data available

Bioaccumulation
HEAVY PARAFFINIC DISTILLATE : no data available
LUBRICANT ADDITIVE : no data available

Ecotoxicity effects
Toxicity to fish
HEAVY PARAFFINIC DISTILLATE : no data available
LUBRICANT ADDITIVE : no data available

Toxicity to daphnia and other aquatic invertebrates.
HEAVY PARAFFINIC DISTILLATE : no data available
LUBRICANT ADDITIVE : no data available

Toxicity to algae
HEAVY PARAFFINIC DISTILLATE : no data available
LUBRICANT ADDITIVE : no data available

Toxicity to bacteria
HEAVY PARAFFINIC DISTILLATE : no data available
LUBRICANT ADDITIVE : no data available

Biochemical Oxygen Demand (BOD)
HEAVY PARAFFINIC DISTILLATE : no data available
13. DISPOSAL CONSIDERATIONS

Waste disposal methods

Dispose of in accordance with all applicable local, state and federal regulations. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution's Environmental Services Group at 800-637-7922.

14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>REGULATION</th>
<th>ID NUMBER</th>
<th>PROPER SHIPPING NAME</th>
<th>*HAZARD CLASS</th>
<th>SUBSIDIARY HAZARDS</th>
<th>PACKING GROUP</th>
<th>MARINE POLLUTANT / LTD. QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. DOT - ROAD</td>
<td></td>
<td>Not dangerous goods</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. DOT - RAIL</td>
<td></td>
<td>Not dangerous goods</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. DOT - INLAND WATERWAYS</td>
<td></td>
<td>Not dangerous goods</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRANSPORT CANADA - ROAD</td>
<td></td>
<td>Not dangerous goods</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
15. REGULATORY INFORMATION

California Prop. 65
Proposition 65 warnings are not required for this product based on the results of a risk assessment.

SARA Hazard Classification
No SARA Hazards

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

New Jersey RTK Label Information
HEAVY PARAFFINIC DISTILLATE
LUBRICANT ADDITIVE

Pennsylvania RTK Label Information
HEAVY PARAFFINIC DISTILLATE
LUBRICANT ADDITIVE

Notification status
US. Toxic Substances Control Act y (positive listing)
Canada. Canadian Environmental Protection Act (CEPA). y (positive listing)
Australia. Industrial Chemical (Notification and Assessment) Act y (positive listing)
New Zealand. Inventory of Chemicals (NZIoC), as published y (positive listing)
by ERMA New Zealand
Japan. Kashin-Hou Law List y (positive listing)
Korea. Toxic Chemical Control Law (TCCL) List y (positive listing)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act y (positive listing)
China. Inventory of Existing Chemical Substances y (positive listing)

<table>
<thead>
<tr>
<th></th>
<th>HMIS</th>
<th>NFPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Flammability</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Physical hazards</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Instability</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Specific Hazard</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).