SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

<table>
<thead>
<tr>
<th>Product name</th>
<th>Product form</th>
<th>Product code</th>
</tr>
</thead>
<tbody>
<tr>
<td>RhoTherm Ultra</td>
<td>Mixture</td>
<td>RT-U</td>
</tr>
</tbody>
</table>

1.2. Relevant identified uses of the substance or mixture and uses advised against:
Heat transfer fluid and antifreeze. Corrosion and scale inhibitor. Not for use where incidental food contact may occur.

1.3. Details of the supplier of the safety data sheet
Rhomar HTF LLC, dba Rhomar Water
2103 E. Rockhurst St., Springfield, MO 65802 USA
Phone: 417-862-2600; Fax: 417-862-6410
TalkToUs@rhomarwater.com

1.4. Emergency telephone number
CHEM TEL: 1-800-255-3924

SECTION 2: HAZARDS IDENTIFICATION

GHS Pictogram: Signal
Word: Warning

Hazard Statements (Hazard Characterization):
- H302: Harmful if swallowed (Acute Toxicity/Oral: Category 4).
- H371: May cause damage to organs or aggravate existing conditions (kidney, liver) through prolonged or repeated exposure (ingestion) (Specific Target Organ toxicity, single exposure: Category 2).
- H316: Causes mild skin irritation (Skin Corrosion/Irritation: Category 3).
- H320: Causes eye irritation (Serious Eye Damage/Eye Irritation: Category 2B).
- H336: May cause drowsiness or dizziness (Specific Target Organ toxicity, single exposure, Narcotic effects, Category 3).

Precautionary Statements:
- P264 + P270: Wash exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product.
- P260: Do not breathe vapors, fumes or mist. Use safety glasses and gloves for personal protection.
- P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P302 + P352 + P362: IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse.
- P301 + P331 + P312: IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. Call a POISON CENTER / doctor / physician if you fell unwell.
- P304 + P340 + P312: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you fell unwell.
- P370 + P378 + P380: IN CASE OF A FIRE: Use alcohol-resistant foam or dry carbon dioxide or media compatible with surrounding fire for extinction. Evacuate area.
- P233 + P410 + P403: Keep the container tightly closed in a well ventilated place. Protect from sunlight.
- P102: Keep out of reach of children.
- P501: Dispose of contents/container in accordance with applicable federal, state and local laws.

Reference: GHS Purple Book-Annex 3
SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS #</th>
<th>Amount, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol</td>
<td>107-21-1</td>
<td>94 - 97</td>
</tr>
<tr>
<td>Alkaline corrosion inhibitors*</td>
<td>BLEND*</td>
<td>1.5 – 2.5</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Balance</td>
</tr>
</tbody>
</table>

* The specific chemical identities of the alkaline corrosion inhibitors is a Rhomar Water trade secret and has thus been withheld.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures
   General advice: If there exists a significant potential for exposure, refer to Section 8 for personal protective equipment
   Eye contact: Immediately flush thoroughly with plenty of water for 15 minutes
   Skin contact: Wash off with soap and plenty of water. Rinse thoroughly with water. Remove and wash contaminated clothing before reuse.
   Inhalation: Move to fresh air. If symptoms persist, call a physician
   Ingestion: Clean mouth with water. Drink water to dilute contents. Do not induce vomiting. Consult physician

4.2. Note to Physician: Contains ethylene glycol and alkaline corrosion inhibitors. Treat symptomatically. Immediate medical attention is important. Ethylene glycol may cause significant acidosis, renal, respiratory, and CNS toxicity.

SECTION 5: FIREFIGHTING MEASURES

NFPA

<table>
<thead>
<tr>
<th>Flammability</th>
<th>Stability and reactivity</th>
<th>Physical hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

5.1. Suitable extinguishing media: Non-combustible. Use alcohol-resistant foam or dry carbon dioxide or media compatible with surrounding fire.
5.2. Unsuitable extinguishing media: Do not use direct water stream as it may aggravate the spread of the fire thus posing a fire hazard.
5.3. Special hazards arising from the substance or mixture: Thermal decomposition may result in smoke which may contain harmful combustion products such as carbon monoxide and carbon dioxide among others
5.4. Advise for firefighters: Wear self-contained breathing apparatus, NIOSH/MSHA (approved or equivalent) and full protective gear for firefighting if necessary

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures: Ensure adequate ventilation. Avoid breathing vapors or mist. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION for more information.
6.2. Environmental precautions: Do not let the product enter sewers, waterways, into soil and groundwater systems. Prevent further leakage if safe to do so. See Section 12, ECOLOGICAL INFORMATION for additional information.
6.3. Methods and material for containment and cleaning: Dam up the area of accidental release to contain large spills. Mechanically collect spillage in suitable containers for disposal. For small spills, adsorb with sawdust or any inert absorbent material. For additional information, see Section 13, DISPOSAL CONSIDERATIONS.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling: For industrial and institutional use only. No special precautions needed when handling the product. See Section 8, EXPOSURE CONTROLS/PERSONAL PROTECTION.
7.2. Conditions for safe storage, including any incompatibilities: Store in original container. Keep storage container tightly closed in a well ventilated, cool and dry place. See Section 10, STABILITY AND REACTIVITY for more information. Although not a principal hazard, keep away from sources of ignition, heat, and oxidizing agents. Vapor inhalation may alter blood pH causing loss of consciousness. Use with adequate mechanical ventilation. Do not cut, drill, weld, or grind on or near this container. Avoid all contact with skin and wash work clothes frequently. An eye bath and safety shower must be available near workplace.
7.3. Specific end use(s): Apart from the uses mentioned in Section 1.2, no other specific uses are prescribed.
### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

This product contains ethylene glycol which has the following occupational exposure limits:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Type of listing</th>
<th>Regulation</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol</td>
<td>STEL</td>
<td>OHSA - PEL</td>
<td>125 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Ceiling</td>
<td>OSHA; NIOSH</td>
<td>50 mg/L</td>
</tr>
<tr>
<td></td>
<td>STEL</td>
<td>ACGIH - TLV</td>
<td>127 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Ceiling, Aerosol</td>
<td>ACGIH</td>
<td>100 mg/m³</td>
</tr>
</tbody>
</table>

8.1. **Exposure controls**

**Eye/face protection**: Wear goggles or safety glasses with side shields.

**Skin/body protection**: Use gloves chemically resistant to this product such as those made from butyl or nitrile rubber when prolonged contact with material could occur.

**Respiratory protection**: Wear suitable personal respiratory protection and protective suit in case of mist, aerosol or spray exposure.

8.2. **Engineering controls**: Adequate ventilation should be ensured.

### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. **Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Lightly viscous liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear</td>
</tr>
<tr>
<td>Odor</td>
<td>Little to none</td>
</tr>
<tr>
<td>pH (as is)</td>
<td>9.5 – 10.5</td>
</tr>
<tr>
<td>Boiling Point (at 760 mmHg)</td>
<td>150 °C (302 °F)</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>-23 °C (-9.5 °F)</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>126.7 °C (260 °F), Pensky-Martens Closed Cup ASTM D93 based on Ethylene glycol</td>
</tr>
<tr>
<td>Flammability/explosive limit</td>
<td>Lower: 3.2 % Vol; upper: 15.3 % Vol Literature Ethylene glycol (at 25°C, 760 mmHg)</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. **Other information**: None available

### SECTION 10: STABILITY AND REACTIVITY

10.1. **Reactivity**: No data available

10.2. **Chemical stability**: Stable under recommended storage conditions

10.3. **Possibility of hazardous reactions**: Polymerization will not occur

10.4. **Conditions to avoid**: Exposure to elevated temperatures can cause it to decompose generating gases which can cause pressure buildup in closed systems. Ethylene glycol mist in air is a moderate fire and explosion hazard.

10.5. **Incompatible materials**: Avoid contact with strong oxidizers, strong acids, strong bases

10.6. **Hazardous decomposition products**: Carbon monoxide, carbon dioxide
SECTION 11: TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity:

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Exposure route</th>
<th>Test specimen</th>
<th>Lethal Dose (LD₅₀)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol</td>
<td>Oral</td>
<td>Rat</td>
<td>6,000 - 13,000 mg/Kg</td>
<td>Literature</td>
</tr>
<tr>
<td></td>
<td>Dermal</td>
<td>Rat</td>
<td>&gt; 22,270 mg/Kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inhalation</td>
<td>Rat</td>
<td>&gt; 3.95 mg/L/7H</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dermal</td>
<td>Rabbit</td>
<td>10,626 mg/Kg</td>
<td></td>
</tr>
<tr>
<td>RhoTherm Ultra</td>
<td></td>
<td></td>
<td>No test data available</td>
<td></td>
</tr>
</tbody>
</table>

Chronic effects:

Carcinogenicity: No ingredient of this product in levels ≥ 0.1% is identified and listed by OSHA, ACGIH, NTP, IARC or Mexico as a known or suspected carcinogen

Mutagenic, reproductive, developmental, target organ or neurological effects: No information available.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Aquatic Toxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Description of ecological effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol</td>
<td>LC₅₀ – 46,000 – 51,100 mg/L (Daphnia magna); LC₅₀ – 27,540 mg/L (Bluegill sunfish); LC₅₀ – 18,000 – 46,000 mg/L (Rainbow trout); LC₅₀ – 51,000 mg/L (Fathead minnow)</td>
</tr>
<tr>
<td>RhoTherm Ultra</td>
<td>No test data available</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability: This product is readily biodegradable

12.3. Bioaccumulative potential: No data available

12.4. Mobility in soil: Mobility potential of product in soil is very high due to its 100 % miscibility with water

12.5. Other adverse effects: None known

SECTION 13: DISPOSAL CONSIDERATIONS


13.2 Waste disposal methods: Whenever possible, minimize waste. Waste should be disposed of in accordance with all laws and regulations pertaining to this product in your area of jurisdiction.

13.3 Contaminated packaging: Decontaminate empty containers. Treat decontamination fluid as waste and dispose as above. You may take the containers for local recycling.

NOTE: Do not dump into any sewers, on the ground, or into any water body. All disposal practices must be in compliance with all federal, state/provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are solely the responsibility of the waste generator.

SECTION 14: TRANSPORT INFORMATION

Domestic Transport regulations: DOT (USA) and TDG (Canada) – UN3082; Hazard Class: 9; Packing group: III; Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Contains Ethylene glycol), Reportable Quantity (RQ) – 5,320 lbs of product. Poison Inhalation hazard: No.

NOTE: Not regulated if shipped in containers or means of containment with less than 5,000 lbs as Ethylene glycol.

International Transport regulations: The international regulation on the transport of dangerous goods (IMDG/IMO, IATA/ICAO, ADR/RID) – Not Regulated
NOTE: This information is not intended to convey all specific regulatory or operational requirements relating to the transportation of this product. Additional transportation information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of this material.

SECTION 15: REGULATORY INFORMATION

15.1. US Federal regulations

This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, CFR 1910.1200.

SARA 313: Ethylene glycol (107-21-1), is subject to the reporting requirements of SARA (1986) Title III, Section 313.

SARA 311/312: Acute health hazard: Yes
              Chronic health hazard: Yes

SARA 302: This product is not known to contain any chemicals subject to the reporting requirements of SARA (1986) Title III, Sections 302 or regulations contained in 40 CFR 302.

15.2. US State regulations

Worker and Community-Right-To-Know Acts: Ethylene glycol (CAS RN 107-21-1) is listed because of the additional requirements of the States of Pennsylvania, New Jersey, and Massachusetts Laws.

Proposition 65: This product does not contain chemicals listed in the State of California as carcinogens, reproductive toxins at levels requiring a warning under this statute.

15.3. Worldwide Chemical Inventory Status:

All the ingredients in this product are listed in USA’s TCSA, and Canada’s DSL inventories.

SECTION 16: OTHER INFORMATION

<table>
<thead>
<tr>
<th>Prepared by</th>
<th>Preparation date</th>
<th>Revision date</th>
<th>Revision number</th>
</tr>
</thead>
</table>

LEGEND:

CAS: Chemical Abstracts Service
TWA: Time Weighted Average
IMDG: International Maritime Dangerous Goods
WEEL: Workplace Environmental Exposure Limit
NTP: National Toxicity Program
CFR: Code of Federal Regulations
DOT: Department of Transport
IATA: International Air Transport Association
TDG: Transport of Dangerous Goods
DSL: Domestic Substances List

SARA: Superfund Amendments and Reauthorization Act
OHSA: Occupational Health and Safety Act
OSHA: Occupational Safety and Health Administration
TCSA: Toxic Substances Control Act
IARC: International Agency for Research on Cancer
MSHA: Mine Safety and Health Administration
NIOSH: National Institute for Occupational Safety and Health
ACGIH: American Conference of Government Industrial Hygienists
ADR & RID: European Agreements Concerning International
Carriage of Dangerous Goods by Rail and by Road

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