**Relatherm ULT** Ultra-Low Temperature Heat Transfer Fluid

# Material Safety Data Sheet (MSDS)

OSHA HazCom Standard 29 CFR 1910.1200(g), Rev. 2012 and GHS Rev 03.

## 1. Identification

Product identifier

| | |
|---|---|
| Trade name | Relatherm ULT |
| Product description | Ultra-Low Temperature Heat Transfer Fluid |

Details of the supplier of the safety data sheet

| | |
|---|---|
| Manufacturer/supplier | Relatherm Heat Transfer Fluids<br>P.O.Box 57874,<br>Jacksonville, FL, 32241 |
| Emergency telephone number | 1-800-387-0406 |

## 2. Hazard(s) Identification

Classification of the substance or mixture

GHS08 GHS02 GHS09 GHS07

Label elements

| | |
|---|---|
| GHS label elements | The product is classified and labeled according to the Globally Harmonized System (GHS). |

Hazard pictograms

GHS08 GHS02 GHS09 GHS07

| | |
|---|---|
| Signal word | Warning |
| Hazard statements | May be fatal if swallowed and enters air ways.<br>Causes skin irritation.<br>Causes serious eye irritation. |

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## 2. Hazard(s) Identification (continued)

Precautionary statements

Wear protective gloves.
Wear eye protection / face protection.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
If swallowed: Call a poison center/doctor if you feel unwell.
Specific treatment (see on this label).
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Rinse mouth.
If on skin: Wash with plenty of water.
Take off contaminated clothing and wash it before reuse.
Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system NFPA ratings (scale 0-4)

Health=1; Fire=1; Reactivity=0

Health=1; Fire=1; Reactivity=0

## 3. Composition / Information on Ingredients

Chemical characterization: Mixtures

Dangerous Components

Terpene

Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2A, H319

GHS02 Flame: Flam. Liq. 3 H226 Flammable liquid and vapor

Aquatic Acute 1, H400; Aquatic Chronic 1, H410;

Skin Irrit. 2, H315; Skin Sens. 1, H317

| Component Name | Identification | Classification according to GHS | % |
|---|---|---|---|
| Terpene | CAS #: 5989-27-5 | GHS02, GHS07, GHS08, GHS09 | 90-95% |
| Proprietary Additives | Trade Secret | Not Classified | 5-10% |

# 4. First-aid Measures

Description of first aid measures

| | |
|---|---|
| General information | Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident. |
| After inhalation | In case of unconsciousness, place patient securely on side position for transportation. |
| After skin contact | Immediately wash with water and soap and rinse thoroughly. If irritation occurs consult a doctor. |
| After eye contact | Rinse opened eye for at least 15 minutes under running water. If symptoms persist, consult a doctor. |
| After swallowing | Immediately call a doctor. |
| Most important symptoms and effects, both acute and delayed | No further relevant information available. |
| Indication of any immediate medical attention and special treatment needed | No further relevant information available. |

# 5. Fire-fighting Measures

Extinguishing media

| | |
|---|---|
| Suitable extinguishing agents | $CO_2$ or Powder. Water mist to cool, no direct water spray. Collect spillage. |
| Special hazards arising from the substance or mixture | No further relevant information available. |

Advice for firefighters

| | |
|---|---|
| Protective equipment | As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes. |

# 6. Accidental Release Measures

| | |
|---|---|
| Personal precautions, protective equipment and emergency procedures | Not required |
| Environmental precautions | Do not allow to enter sewers/ surface or ground water |
| Methods and material for containment and cleaning up | Absorb with liquid-binding material (i.e. sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to section 13. Ensure adequate ventilation. Dispose of the collected material according to regulations. |
| Reference to other sections | See Section 7 for information on safe handling.<br>See Section 8 for information on personal protection equipment.<br>See Section 13 for disposal information. |

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## 7. Handling and Storage

| | |
|---|---|
| Precautions for safe handling | Ensure good ventilation/exhaustion at the workplace. Prevent formation of aerosols. |
| Information about protection against explosions and fires | No special measures required |
| Conditions for safe storage, including any incompatibilities | Storage |
| Requirements to be met by storerooms and receptacles: | No special requirements |
| Further information about storage conditions | Keep receptacle tightly sealed |
| Specific end use(s) | No further relevant information available |

## 8. Exposure Controls / Personal Protection

| | |
|---|---|
| Additional information about design of technical systems | No further data; see section 7 |
| Control parameters | |
| Components with occupational exposure limits | The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace. |
| Additional information | The lists that were valid during the creation were used as basis. |
| Exposure controls | |
| Personal protective equipment | |
| General protective and hygienic measures | Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Avoid contact with the eyes and skin. |
| Breathing equipment | Not required |
| Protection of hands | Protective gloves<br>The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Select glove material based on penetration times, rates of diffusion and degradation. |
| Material of gloves | The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. |
| Penetration time of glove material | The exact break-through time has to be determined and observed by the manufacturer of the protective gloves. |
| Eye protection | Tightly sealed goggles |

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## 9. Physical and Chemical Properties

Information on basic physical and chemical properties

| | |
|---|---|
| General Informataion | |
| Appearance | |
| Form | Liquid |
| Color | Clear |
| Odor | Citrus |
| Odor Threshold | Not determined |
| pH-value | Not determined |
| Change in Condition | |
| Melting point/Melting range | -96°C (-141°F) |
| Boiling point/Boiling range | 178°C (348°F) |
| Flash Point (CC) | >43°C (>109°F) |
| Flammability (solids, gases) | Not determined |
| Ignition Temperature | |
| Decomposition Temperature | Not determined |
| Auto Ignition | 237°C(459°F) |
| Danger of explosion | Not determined |
| Explogion Limits | |
| Lower | 0.7% |
| Upper | 6.1% |
| Vapor Pressure @ 20°C | <2 mmHg (68°F) |
| Density @ 25C | 0.838-0.843 |
| Relative Density | Not determined |
| Vapor Density | 4.7 |
| Evaporation Rate | 0.2 (BuAC=1) |
| Solubility in/Miscibility with water | No Soluble |
| Partition coefficient (n-octanol/water) | Kow=4.23 |
| Viscosity | |
| Viscosity - Dynamic | 0.923 cP |
| Viscosity - Kinematic | |
| Solvent Content | |
| Organic Solvents | >70% |
| Other Information | No further information |

# 10. Stability and Reactivity

| | |
|---|---|
| Reactivity | No further relevant information available |
| Chemical stability | Stable under normal conditions |
| Thermal decomposition / conditions to be avoided | No decomposition if used according to specifications |
| Possibility of hazardous reactions | No dangerous reactions known |
| Conditions to avoid | No further relevant information available |
| Incompatible materials | No further relevant information available |
| Hazardous decomposition products | No dangerous decomposition products known |

# 11. Toxicological Information

Information on toxicological effects

Acute toxicity

LD/LC50 values that are relevant for classification

| | |
|---|---|
| 9003-13-8 Polyalkylene Glycol | Oral: LD50 >300- <2000 mg/kg (rat)<br>Dermal: LD50 >2000 mg/kg (rat) |

Primary irritant effect:

| | |
|---|---|
| On the skin | Irritant to skin and mucous membranes |
| On the eye | Irritating effect. Causes serious eye irritation |
| Additional toxicological information | The product shows the following dangers according to internally approved calculation methods for preparations: Harmful. Irritant. |

Carcinogenic categories

| | |
|---|---|
| IARC (International Agency for Research on Cancer) | None of the ingredients are listed.<br>Group 1 - Carcinogenic to humans<br>Group 2A - Probably carcinogenic to humans<br>Group 2B - Possibly carcinogenic to humans<br>Group 3 - Not classifiable as to its carcinogenicity to humans<br>Group 4 - Probably not carcinogenic to humans |
| NTP (National Toxicology Program) | None of the ingredients are listed |
| OSHA-Ca (Occupational Safety & Health Administration) | None of the ingredients are listed |

# 12. Ecological Information

| | |
|---|---|
| Toxicity | No data is available on this product. |
| Aquatic toxicity | No further relevant information available |
| Persistence and degradability | No further relevant information available |
| Bioaccumulative potential | No further relevant information available |
| Mobility in soil | No further relevant information available |

Additional ecological information

General notes: Water hazard class 1 (Self-assessment): slightly hazardous for water

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## 12. Ecological Information (continued)

Results of PBT and vPvB assessment

| | |
|---|---|
| PBT | Not applicable |
| vPvB | Not applicable |
| Other adverse effects | No further relevant information available |

## 13. Disposal Considerations

Uncleaned packagings

| | |
|---|---|
| Recommendation | Disposal must be made according to official regulations. |

## 14. Transportation Information

UN-Number

| | |
|---|---|
| DOT, ADR, ADN, IMDG, IATA | Non-regulated material |

UN proper shipping name

| | |
|---|---|
| DOT, ADR, ADN, IMDG, IATA | Non-regulated material |

Transport hazard class(es)

DOT, ADR, ADN, IMDG, IATA

| | |
|---|---|
| Class | Non-regulated material |

Packing group

| | |
|---|---|
| DOT, ADR, IMDG, IATA | Non-regulated material |

Environmental hazards

| | |
|---|---|
| Marine pollutant | No |
| Special precautions for user | Not applicable |
| Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable |
| UN “Model Regulation” | — |

## 15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture Sara

| | |
|---|---|
| Section 355 (extremely hazardous substances) | None of the ingredients are listed |
| Section 313 (Specific toxic chemical listings) | None of the ingredients are listed |
| TSCA (Toxic Substances Control Act) | All components are either listed or not regulated under TSCA |

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## 15. Regulatory Information (continued)

| | |
|---|---|
| Carcinogenic categories | |
| EPA (Environmental Protection Agency) | None of the ingredients are listed |
| TLV (Threshold Limit Value established by ACGIH) | None of the ingredients are listed |
| NIOSH-Ca (National Institute for Occupational Safety and Health) | None of the ingredients are listed |
| GHS label elements | Non-regulated material |
| Hazard pictograms | GHS08 GHS02 GHS09 GHS07 |
| Signal word | Warning |
| Hazard-determining components of labeling | d-limonene |
| Hazard statements | Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. |
| Precautionary statements | Wear protective gloves.<br>Wear eye protection / face protection.<br>Wash thoroughly after handling.<br>Do not eat, drink or smoke when using this product.<br>If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.<br>Continue rinsing.<br>If swallowed: Call a poison center/doctor if you feel unwell.<br>Specific treatment (see on this label).<br>If skin irritation occurs: Get medical advice/attention.<br>If eye irritation persists: Get medical advice/attention.<br>Rinse mouth.<br>If on skin: Wash with plenty of water.<br>Take off contaminated clothing and wash it before reuse.<br>Dispose of contents/container in accordance with local/regional/national/ international regulations. |
| National regulations | The product is subject to be labeled according with the prevailing version of the regulations on hazardous substances. |

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## 15. Regulatory Information (continued)

State Right to Know

d-limonene

94266-47-4

Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2A, H319

GHS02 Flame: Flam. Liq. 3 H226 Flammable liquid and vapor

Aquatic Acute 1, H400; Aquatic Chronic 1, H410;

Skin Irrit. 2, H315; Skin Sens. 1, H317

Chemical safety assessment

A chemical safety assessment has not been carried out

## 16. Other Information

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

Date of preparation / last revision

02/19/2016 / 1

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International
Carriage of Dangerous Goods by Road)
ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
Acute Tox. 4: Acute toxicity, Hazard Category 4
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A