

# Relatherm DX-1 Immersion Cooling Dielectric 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 DX-1
Product description	Immersion Cooling Dielectric Heat Transfer Fluid
Details of the supplier of the safety data sheet	
Manufacturer/supplier	Relatherm Heat Transfer Fluids P.O.Box 57874, Jacksonville, FL, 32241
Emergency telephone number	1-800-387-0406

### 2. Hazard(s) Identification

Classification of the substance or mixture

Aspiration Hazard, Category 1



Label elements

GHS label elements

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

Hazard pictograms



GHS08

Signal word

Warning

Hazard statements

Aspiration Hazard. May be fatal if swallowed and enters air ways.

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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=0; Fire=1; Reactivity=0

## 3. Composition / Information on Ingredients

Chemical characterization: Mixtures

Dangerous Components None

Component Name	Identification	Classification according to GHS	%
Hydrocarbons	Mixture	GHS08	55%-75%
Proprietary Additives	Trade Secret	Not Classified	25% -45%

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## 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 <sub>2</sub> 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. See Section 8 for information on personal protection equipment. 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	 <p>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.</p>
Material of gloves	Protective gloves
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	None
Odor Threshold	Not determined
pH-value	Not determined
Change in Condition	
Pour Point	-68°C (-91°F)
Boiling point/Boiling range	>400°C (>752°F)
Flash Point (CC)	226°C (438°F)
Flammability (solids, gases)	Not determined
Ignition Temperature	
Decomposition Temperature	Not determined
Auto Ignition	340°C(644°F)
Danger of explosion	Not determined
Explosion Limits	
Lower	
Upper	
Vapor Pressure @ 177°C	<2 mmHg (351°F)
Specific Gravity @ 15°C	0.82
Relative Density	Not determined
Vapor Density	
Evaporation Rate	
Solubility in/Miscibility with water	Not Soluble
Partition coefficient (n-octanol/water)	
Viscosity	
Viscosity - Dynamic	
Viscosity – Kinematic (100°C /212°F)	4 cSt
Solvent Content	
Organic Solvents	>70%
Other Information	No further information

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## 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

LD50/LC50 values that are relevant for classification

Oral: LD50 >5000 mg/kg (rat)  
 Dermal: LD50 >2000 mg/kg (rat)  
 Inhalation: LC50 >5.2 mg/l (rat)  
 Exposure time: 4 h; Sex: male and female; Test atmosphere: dust/mist

Primary irritant effect:

On the skin	No skin irritation
On the eye	No eye irritation
Additional toxicological information	Aspiration Toxicity. May be fatal if swallowed or if it enters airways
Carcinogenic categories	
IARC (International Agency for Research on Cancer)	None of the ingredients are listed.
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	LC50: > 1,000 mg/l; Exposure time: 96 h; Species: Salmo gairdneri (Rainbow trout)
Persistence and degradability	Expected to be inherently biodegradable.
Bioaccumulative potential	This material is not expected to bioaccumulate.
Mobility in soil	No further relevant information available
Additional ecological information	
General notes	This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

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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 packaging

Recommendation	Disposal must be made according to official regulations.
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## 14. Transportation Information

UN-Number

DOT, ADR, ADN, IMDG, IATA	Non-regulated material
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UN proper shipping name

DOT, ADR, ADN, IMDG, IATA	Non-regulated material
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Transport hazard class(es)

DOT, ADR, ADN, IMDG, IATA	
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Class

Non-regulated material

Packing group

DOT, ADR, IMDG, IATA	Non-regulated material
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Environmental hazards

Marine pollutant	No
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Special precautions for user	Not applicable
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Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

UN "Model Regulation"	—
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## 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
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Section 313 (Specific toxic chemical listings)	None of the ingredients are listed
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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

Warning

Signal word

Hazard-determining components of labeling

Hazard statements

Precautionary statements

May be fatal if swallowed/inhaled

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.

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

No Components

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

05/16/2022 / 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