

# Safety Data Sheet

#### **SECTION 1: Identification of the substance/mixture and of the company/undertaking**

#### Identification of the substance or mixture

Product codeSCC1, SCC5Product nameCryocool Heat Transfer Fluid

#### Company/undertaking identification

Thermo Fisher Scientific (Asheville) LLC 275 Aiken Road Asheville, NC 28804 1-866-984-3766 Life Technologies 5250 Mainway Drive Burlington, ONT CANADA L7L 6A4 800/263-6236

24 hour Emergency Response for Hazardous Materials Within the USA + Canada: 1-800-424-9300 and +1[or Dangerous Goods] Incident. Spill, Leak, Fire,<br/>Exposure, or Accident. Call CHEMTREC703-527-3887<br/>Outside the USA + Canada: +1 703-741-5970

Country Specific Emergency Number (if available):

Identified uses: Intended as a heat transfer fluid for closed-loop systems. For industrial use only. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

# **SECTION 2: Hazards identification**

**GHS** - Classification

Signal Word WARNING

Hazard pictograms



Revision date Product code 17-Oct-2018 SCC1, SCC5



#### Health hazards

Reproductive Toxicity Category 2

#### Physical hazards

GHS Physical Hazard	Flammable liquids
GHS Physical Hazard Category Number	Category 3

#### Environmental hazards

Not classified

# Hazard Statements

H226 - Flammable liquid and vapor H361 - Suspected of damaging fertility or the unborn child

# **Precautionary Statements**

#### Prevention

P201 - Obtain special instructions before use

P202 - Do not handle until all safety precautions have been read and understood

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P233 - Keep container tightly closed

P240 - Ground/bond container and receiving equipment

P241 - Use explosion-proof electrical/ ventilating/ lighting/ equipment

P242 - Use non-sparking tools

P243 - Take action to prevent static discharges

P280 - Wear protective gloves/protective clothing/eye protection/face protection

# Response

P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

P308 + P313 - IF exposed or concerned: Get medical advice/attention

P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction

# Storage

P403 + P235 - Store in a well-ventilated place. Keep cool

# Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

# Other hazards

Not Applicable

# <u>HMIS</u>

Health	No information available
Flammability	No information available
Reactivity	No information available

# **SECTION 3: Composition/information on ingredients**

Component	CAS-No	EINECS-No	Weight %
Octamethyltrisiloxane 107-51-7(30-50)	107-51-7	-	30-50
Octamethylcyclotetrasiloxane 556-67-2 (0.1-1)	556-67-2	209-136-7	0.1-1
Dodecamethylpentasiloxane 141-63-9(10-20)	141-63-9	-	10-20
Decamethyltetrasiloxane 141-62-8 ( 20-30 )	141-62-8	-	20-30

We recommend handling all chemicals with caution.

# **SECTION 4: First aid measures**

# Description of first aid measures

Skin contact	Rinse with plenty of water .
Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If effects occur, consult a physician, preferably an ophthalmologist.
Ingestion	Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.
Inhalation	No emergency medical treatment necessary.
Notes to Physician	Because rapid absorption may occur through the lungs if aspirated and cause systemic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

#### Most important symptoms and effects, both acute and delayed

H226 - Flammable liquid and vapor H361 - Suspected of damaging fertility or the unborn child

# Indication of any immediate medical attention and special treatment needed None.

Extinguishing media

Suitable extinguishing media	Water fog or fine spray. Dry chemical fire extinguishers.
	Carbon dioxide fire extinguishers. Foam. General purpose
	synthetic foams (including AFFF type) or protein foams are
	preferred if available. Alcohol resistant foams (ATC type)
	may function.
Unsuitable extinguishing media	No information available.

#### Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Liquid mist of this product can burn. Flammable concentrations of vapor can accumulate at temperatures above flash point; see Section 9.

# Advice for fire-fighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Avoid accumulation of water. Product may be carried across water surface spreading fire or contacting an ignition source.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

# **SECTION 6: Accidental release measures**

# Personal precautions, protective equipment and emergency procedures

Vapor explosion hazard. Keep out of sewers. Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

#### **Environmental precautions**

Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

# Methods and material for containment and cleaning up

Vapor explosion hazard. Keep out of sewers. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Material will float on water. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Small spills: Contain spilled material if possible. Absorb with materials such as: Cat litter. Sawdust. Vermiculite. Zorb-all®. Collect in suitable and properly labeled containers. Large spills: Dike area to contain spill. See Section 13, Disposal Considerations, for additional information.

# **Reference to other sections**

See section 8 for more information.

# **SECTION 7: Handling and storage**

# Precautions for safe handling

Keep away from heat, sparks and flame. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Avoid breathing vapor. Wash thoroughly after handling. Keep container closed. Use only with adequate ventilation. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION. This product is a poor conductor of electricity and can become electrostaically charged, even in bonded or grounded equipment. If sufficient charge is accumulated, ignition of flammable mixtures can occur. Handling operations that can promote accumulation of static charges include but are not limited to mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations.

# Conditions for safe storage, including any incompatibilities

Minimize sources of ignition, such as static build-up, heat, spark or flame. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. No smoking, open flames or sources of ignition in handling and storage area. Store in tightly closed container. Use only with adequate ventilation. Do not store in: Opened or unlabeled containers. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact. See Section 10 for more specific information.

# **Storage Conditions**

Shelf life: Use within 60 Month.

# Specific end use(s)

For research use only.

# **SECTION 8: Exposure controls/personal protection**

# Control parameters

Chemical Name	OSHA PEL	OSHA PEL (Ceiling)	ACGIH OEL (TWA)	ACGIH OEL (STEL)
Octamethyltrisiloxane	None	None	None	None
Octamethylcyclotetrasilox	None	None	None	None
ane				
Dodecamethylpentasiloxa	None	None	None	None
ne				
Decamethyltetrasiloxane	None	None	None	None

Chemical Name	Brazil - OEL - TWAs (LTs)	Brazil - OEL - Ceilings	Brazil - OEL - Skin Designations
Octamethyltrisiloxane	None	None	None
Octamethylcyclotetrasiloxane	None	None	None
Dodecamethylpentasiloxane	None	None	None
Decamethyltetrasiloxane	None	None	None

Engineering measures

Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations.

# Exposure controls

# **Personal Protective Equipment**

**Respiratory protection** Respiratory protection should be worn when there is a potential to exceed the

	exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge.
Hand protection	Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Butyl rubber. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Examples of acceptable glove barrier materials include: Natural rubber ("latex"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.
Eye protection	Tight sealing safety goggles.
Skin and Body Protection	Wear suitable protective clothing.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice

Environmental exposure controls Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

#### **SECTION 9: Physical and chemical properties**

Information on basic physical and chemical properties

liquid clear Odorless to mild **°C** Freezing point < -101 °C °C Mixture has not been tested °C 42 °C Closed Cup °C 350 °C ASTM D2155 °C Mixture has not been tested No data available No data available 12.5 % vol 0.7 % vol < 5 mmHg at 25 °C (77 °F) 0.85 at 25 °C (77 °F) / 25 °C No data available < 0.1 % No data available Kinematic Viscosity: 1.66 cSt at 20 °C (68 °F)

Mixture has not been tested

**°F** Freezing point < -150 °F

- °F Mixture has not been tested
- °F 108 °F Closed Cup
- °F 662 °F ASTM D2155
- °F Mixture has not been tested

**Other information** No data available.

# **SECTION 10: Stability and reactivity**

Chemical stability	Thermally stable at typical use temperatures.
Possibility of hazardous reactions	Polymerization will not occur.
Conditions to avoid	Product can oxidize at elevated temperatures.
Incompatible materials	Strong acids. Strong bases. Strong oxidizing agents.
Hazardous decomposition products	Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Formaldehyde.

# **SECTION 11: Toxicological information**

# Information on toxicological effects

Acute oral toxicity Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. Based on information for component(s): LD50, Rat, > 5,000 mg/kg Estimated.

Acute dermal toxicity Prolonged skin contact is unlikely to result in absorption of harmful amounts. Based on information for component(s): LD50, Rabbit, > 2,000 mg/kg Estimated. No deaths occurred at this concentration.

Acute inhalation toxicity

No adverse effects are anticipated from inhalation. Based on the available data, narcotic effects were not observed. As product: The LC50 has not been determined.

Chemical Name	LD50 (oral,rat/mouse)	LD50 (dermal,rat/rabbit)	LC50 (inhalation,rat/mouse)
Octamethyltrisiloxane	No data available	No data available	No data available
Octamethylcyclotetrasiloxane	= 1540 mg/kg (Rat)	No data available	=36g/m <sup>3</sup> (Rat)
Dodecamethylpentasiloxane	No data available	No data available	No data available
Decamethyltetrasiloxane	No data available	No data available	No data available

# Principal Routes of Exposure

Irritation	Brief contact is essentially nonirritating to skin. May cause slight temporary eye irritation. Corneal injury is unlikely. May cause mild eye discomfort.
Corrosivity	Conclusive but not sufficient for classification
Sensitization	Based on information for component(s): Did not cause allergic skin reactions when tested in guinea pigs. For respiratory sensitization: No relevant information found.
STOT - Single Exposure	Evaluation of available data suggests that this material is not an STOT-SE toxicant.
STOT - Repeated Exposure	For the minor component(s): In animals, effects have been reported on the following organs: Liver.
Carcinogenicity	Contains component(s) which did not cause cancer in laboratory animals.
Mutagenicity	Contains a component(s) which were negative in in vitro genetic toxicity studies. Contains component(s) which were negative in animal genetic toxicity studies.
Reproductive toxicity	For the minor component(s): In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. In animal studies, has been shown to interfere with fertility. Contains component(s) which did not cause birth defects or any other fetal effects in lab animals.
Aspiration hazard	May be harmful if swallowed and enters airways.

# Toxicity

Octamethyltrisiloxane Acute toxicity to fish Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Toxicity to bacteria For similar material(s): EC50, activated sludge, static test, 3 Hour, Respiration rates., > 100 mg/l, OECD Test Guideline 209

Chronic toxicity to fish No toxicity at the limit of solubility NOEC, Oncorhynchus mykiss (rainbow trout), 90 d, > 0.027 mg/l

Chronic toxicity to aquatic invertebrates No toxicity at the limit of solubility NOEC, Daphnia magna (Water flea), flow-through test, 21 d, > 0.015 mg/l

Decamethyltetrasiloxane Acute toxicity to fish Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested). LC50, Oncorhynchus mykiss (rainbow trout), flow-through, 96 Hour, > 0.0063 mg/l

Acute toxicity to algae/aquatic plants EC50, Pseudokirchneriella subcapitata (green algae), Static, 72 Hour, Growth rate, > 0.0022 mg/l

Toxicity to bacteria EC50, activated sludge, Static, 3 Hour, Respiration rates., > 100 mg/l

Octamethyl Cyclotetrasiloxane Acute toxicity to fish Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested). No toxicity at the limit of solubility LC50, Cyprinodon variegatus (sheepshead minnow), flow-through, 96 Hour, > 0.0063 mg/l No toxicity at the limit of solubility LC50, Oncorhynchus mykiss (rainbow trout), flow-through, 96 Hour, > 0.022 mg/l

Acute toxicity to aquatic invertebrates No toxicity at the limit of solubility EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, > 0.015 mg/l No toxicity at the limit of solubility EC50, Mysidopsis bahia (opossum shrimp), flow-through test, 48 Hour, > 0.0091 mg/l

Acute toxicity to algae/aquatic plants EC50, Pseudokirchneriella subcapitata (green algae), static test, 96 Hour, Biomass, > 2,000 mg/l EC50, blue-green alga Anabaena flos-aguae, static test, 96 Hour, Biomass, > 2,000 mg/l

Dodecamethylpentasiloxane Acute toxicity to fish No toxicity at the limit of solubility LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, > 0.000075 mg/l, OECD Test Guideline 203.

Chemical Name	Freshwater Algae Data	Water Flea Data	Freshwater Fish Species Data	Microtox Data	log Pow
Octamethyltrisiloxane	No data available	No data available	No data available	No data available	No data available
Octamethylcyclotetrasiloxa	No data available	Daphnia magna	No data available	No data available	No data available
ne		EC50=25.2 mg/L (24			
		h)			
Dodecamethylpentasiloxane	No data available	No data available	No data available	No data available	No data available
Decamethyltetrasiloxane	No data available	No data available	No data available	No data available	No data available
Mobility	Octame	thyltrisiloxane			

# Potential for mobility in soil is slight (Koc between 2000 and 5000). Partition coefficient (Koc): 3179 Estimated. Decamethyltetrasiloxane Expected to be relatively immobile in soil (Koc > 5000). Partition coefficient (Koc): > 5000 Estimated. Octamethyl Cyclotetrasiloxane Expected to be relatively immobile in soil (Koc > 5000). Dodecamethylpentasiloxane Expected to be relatively immobile in soil (Koc > 5000). Partition coefficient (Koc): > 5000. Octamethyltrisiloxane Persistence and degradability Biodegradability: Biodegradation under aerobic laboratory conditions is below detectable limits (BOD20 or BOD28/ThOD < 2.5%). Biodegradation: 0 % Exposure time: 28 d Method: OECD Test Guideline 310 or Equivalent Photodegradation Atmospheric half-life: 8.94 d Method: Estimated. Decamethyltetrasiloxane Biodegradability: Material is not readily biodegradable according to OECD/EEC quidelines. 10-day Window: Not applicable Biodegradation: 0 % Exposure time: 28 d Method: OECD Test Guideline 310 Octamethyl Cyclotetrasiloxane Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability. Biodegradation: 3.7 % Exposure time: 29 d Method: OECD Test Guideline 310 Photodegradation Atmospheric half-life: 16 d Method: Estimated. Dodecamethylpentasiloxane Biodegradability: Material is not readily biodegradable according to OECD/EEC

	guidelines. 10-day Window: Fail Biodegradation: 0 % Exposure time: 28 d Method: OECD Test Guideline 310.
Bioaccumulative potential	Octamethyltrisiloxane Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7). Partition coefficient: n-octanol/water(log Pow): 5.35 Estimated.
	Decamethyltetrasiloxane Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7). Partition coefficient: n-octanol/water(log Pow): 8.21 Measured Bioconcentration factor (BCF): 3,397 Estimated.
	Octamethyl Cyclotetrasiloxane Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7). Partition coefficient: n-octanol/water(log Pow): 6.49 Measured Bioconcentration factor (BCF): 12,400 Pimephales promelas (fathead minnow) Measured
	Dodecamethylpentasiloxane Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). Partition coefficient: n-octanol/water(log Pow): 9.26 Bioconcentration factor (BCF): 170.
Results of PBT and vPvB asses	sment

No information available.

Other adverse effects

No information available.

# **SECTION 13: Disposal considerations**

# Waste treatment methods

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. 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 the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN SDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device.

# **SECTION 14: Transport information**

# IATA / ADR / DOT-US / IMDG

Classified as dangerous in the meaning of transport regulations

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system 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 the material.

UN number UN proper shipping name Transport hazard class(es) Packing group UN 1993 Flammable liquid, n.o.s.(POLYDIMETHYLSILOXANE) 3 III

Environmental hazards Not Applicable

Special precautions for user Not Applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not Applicable.

# **SECTION 15: Regulatory information**

Component	US TSCA
Octamethyltrisiloxane	Listed
107-51-7(30-50)	
Octamethylcyclotetrasiloxane	Listed
556-67-2(0.1-1)	
Dodecamethylpentasiloxane	Listed
141-63-9(10-20)	
Decamethyltetrasiloxane	Listed
141-62-8 ( 20-30 )	

# **US Federal Regulations**

# **SARA 313**

This product is not regulated by SARA.

# Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product does not contains HAPs.

# US State Regulations

# **California Proposition 65**

This product does not contain any Proposition 65 chemicals.

# WHMIS Hazard Class

Not Determined

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR.

# National Regulations - Brazil

Chemical Name	<u>CAS-No</u>	Brazil - National Agency for Sanitary Surveillance (ANVISA)	Brazil - National List of Carcinogen Agents to Humans (LINACH)
Octamethyltrisiloxane	107-51-7	Not Listed	Not Listed
Octamethylcyclotetrasiloxan	556-67-2	Not Listed	Not Listed
е			
Dodecamethylpentasiloxane	141-63-9	Not Listed	Not Listed
Decamethyltetrasiloxane	141-62-8	Not Listed	Not Listed

# **SECTION 16: Other information**

Reason for revision	SDS sections updated.		
Revision number	1		
Revision date	17-Oct-2018		

Identified uses: Intended as a heat transfer fluid for closed-loop systems. For industrial use only. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated

use, please contact your sales or technical service representative.

# **References**

- ECHA: http://echa.europa.eu/
- TOXNET: http://toxnet.nlm.nih.gov/
- eChemPortal: http://www.echemportal.org/
- LOLI database: https://www.chemadvisor.com/loli-database

"The above information was acquired by diligent search and/or investigation and the recommendations are based on prudent application of professional judgment. The information shall not be taken as being all inclusive and is to be used only as a guide. All materials and mixtures may present unknown hazards and should be used with caution. Since the Company cannot control the actual methods, volumes, or conditions of use, the Company shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein. THE INFORMATION IN THIS SDS DOES NOT CONSTITUTE A WARRANTY, EXPRESSED OR IMPLIED,INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE"

**End of Safety Data Sheet**