SECTION 1. Identification of the substance/mixture and of the company

Product identifier

Name Used on Label	:	**Thermal C2**
Order-No. (5 Liter)	:	8891401
Order-No. (10 Liter)	:	8891400
Order-No. (55 Gal Drum)	:	8891300

Company	:	JULABO U.S.A., INC
Manufactured for:		884 Marcon Blvd
		ALLENTOWN,PA 18109 / U.S.A.
Phone	:	[+1] 610-231-0250
Fax	:	[+1] 610-231-0260
E-mail	:	info@julabo.com
Internet	:	www.julabo.com

Emergency Information :CHEMTREC 1-800-424-9300
Trade name :Polydimethylsiloxane

Recommended use	:	Industrial use only
Application	:	temperature control liquid
	:	working temperature range -90 °C - +60 °C

SECTION 2. Hazards identification

GHS Classification

Flammable liquids — Category 4

GHS Label Element

Signal Word — Warning

Hazard Statements — H227 Combustible liquid

Precautionary Statements

Prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking

P280 Wear protective gloves/eye protection/face protection

Storage

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

Disposal

P501 Dispose of contents/container to an approved waste disposal Facility.

HMIS Ratings: Health: 0 Flammability: 2 Physical hazard: 0

SECTION 3. Composition / information on ingredients

Substances

Substances/Mixture — Mixture

Chemical nature — Silicone

Chemical Name	CAS number	%
Dodecamethylpentasiloxane	141-63-9	90-100
Polydiimethylsiloxane	63148-62-9	1-5
Dodecamethyl cyclohexasiloxane	540-97-6	1-5

Dangerous components Not applicable

SECTION 4. First aid measures

Description of first aid measures

General information:	No special measures required
Inhalation	Supply fresh air; consult doctor in case of complaints.
Skin contact	Wash skin with soap and water; consult doctor if symptoms occur.
Eye contact	Rinse immediately with plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. DO NOT induce vomiting. Get medical attention immediately.
Most important symptoms/effects, acute and delayed	None known
Protection of first-aidersB	No special precautions are necessary for first aid responders.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.

SECTION 5. Firefighting measures

Flash point:	167 °F / 75 °C (Closed Cup)
Boiling point:	442 °F / 229 °C
Autoignition temperature:	430 °C
Flammability Limits in Air:	Not determined
Suitable extinguishing media	Dry foam, alcohol-resistant foam. Carbon dioxide (CO_2), water.
Unsuitable extinguishing media	Water with full jet.
Specific hazards arising from the chemical	Do not use a solid water stream as it may scatter and spread fire. Flash back possible over considerable distance. Vapors may form explosive mixture with air. Fire burns more vigorously than would be expected. Exposure to combustion products may be a hazard to health.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet, gloves, rubber boots, and self-contained breathing apparatus.
Fire-fighting equipment / Instructions	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Cool containers/tanks with water spray. Remove containers from fire area if it is safe to do so. Evacuate area.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Wear appropriate personal protective equipment. Particular danger of slipping on leaked / spilled product. Remove all ignition sources.

Environmental precautions
Do not allow product to reach sewage system or any water course. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and material for containment and cleaning up
Non-sparking tools should be used. Soak up with inert absorbent material (*e.g.* sand, silica gel, acid binder, universal binder, sawdust). For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent.
Suppress gases/vapors/mists with a water spray jet.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. Handling and storage

Technical measures
See engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation
Use with local exhaust ventilation. Use only in an area equipped with explosion proof exhaust ventilation.

Conditions for safe storage, including any incompatibilities

Store in a cool, dry place out of direct sunlight. Keep in original, properly labeled container. Keep away from heat and sources of ignition.

Advice on safe handling

Handle in accordance with good industrial hygiene and safety practices. Keep container tightly closed. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Take care to prevent spills, waste and minimize release to the environment.

Materials to avoid

Do not store with the following product types: strong oxidizing agents, explosives, gases.

SECTION 8. Exposure controls / personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Provide eyewash station
Engineering measures	Processing may form hazardous compounds (Section 10) Ensure adequate ventilation, especially in confined areas Use only in an area equipped with explosion proof exhaust ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection	Use proper protection – safety glasses as a minimum
Skin protection	
Hand protection	Wear flame retardant protective gloves
Other	Wear flame retardant antistatic protective clothing. Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc.)
Respiratory protection	General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.
Thermal hazards	Not available

General hygiene considerations

Wash hands before breaks and immediately after handling product. Handle in accordance with good industrial hygiene and safety practice. This product can generate formaldehyde at approximately 150 °C (300 °F) and above in the presence of air. Formaldehyde is a skin and respiratory sensitizer, eye and throat irritant, acute toxicant and potential cancer hazard. Safe handling conditions may be maintained by keeping vapor concentrations within the OSHA Permissible Exposure Limit for formaldehyde.

SECTION 9. Physical and chemical properties

Physical Form	Liquid
Color	Colorless
Odor	Odorless
Density	0.872 (@ 25 °C)
Viscosity	2 cSt (@ 25 °C)
pH	Not available
Freezing / melting point	Not available
Initial boiling point / boiling range	>205 °C
Flash point	87 °C (Closed Cup)
Auto-ignition temperature	>752 °F / 430 °C
Self-igniting	Product is not self-igniting
Danger of explosion	Product does not present an explosion hazard
Decomposition temperature	Not available

Evaporation rate	Not available
Volatile content	0%
Flammability (solid , gas)	Not applicable
Upper / lower flammability or explosive limits	
Flammability limit – lower (%)	Not available
Flammability limit – upper (%)	Not available
Explosive limit – lower (%)	Not available
Explosive limit – upper (%)	Not available
Vapor pressure	Not available
Vapor density	Not available
Solubility in water	Insoluble
Oxidizing properties	Not classified as oxidizing
Molecular weight	Not available

Above information is not intended for use in preparing product specifications.

SECTION 10. Stability and reactivity

Reactivity	Product stable and non-reactive under normal conditions of use, storage and transport. Not a reactive hazard.
Chemical stability	Stable at normal conditions
Possibility of hazardous reactions	Hazardous polymerization does not occur. Combustible liquid. Vapors may form explosive mixture with air. Can react with strong oxidizing agents. When heated to temperatures above 150 °C (300 °F) in the presence of air, trace quantities of formaldehyde may be released. Adequate ventilation is required. See OSHS formaldehyde standard 29 CFR 1910.1048
Conditions to avoid	Heat, flames, sparks.
Incompatible materials	Strong oxidizing agents
Hazardous decomposition products	Hazardous decomposition products will be formed at elevated Temperatures.

SECTION 11. Toxicological information

Information on likely routes of exposure

Ingestion	Not available
Inhalation	Not available
Skin contact	Not available
Eye contact	Contact of the product with the human eye may result in a harmless and reversible clouding of sight which is of short duration, caused by formation of an oil film on the cornea.

Symptoms related to the physical, chemical and toxicological characteristics

Information on toxicological effects

Acute oral toxicity	LD50 (rat): >2,000 mg/kg No acute oral toxicity based on data from similar results.
Acute dermal toxicity	LD50 (rabbit): >2,000 mg/kg No acute dermal toxicity based on data from similar results.
Skin corrosion / irritation	Not classified based on available information.
Species	Rabbit
Result	No skin irritation
Remarks	Based on data from similar results
Serious eye damage / eye irritation	Not classified based on available information.
Species	Rabbit
Result	No eye irritation
Remarks	Based on data from similar materials
Respiratory or skin sensitization	
Respiratory sensitization	Not classified based on available information
Skin sensitization	Not classified based on available information
Germ cell mutagenicity	Not classified based on available information

Germ cell mutagenicity	Not classified based on available information
Genotoxicity in vitro	Test type: Bacterial reverse mutation assay (AMES)
Result	Negative; based on test data
Carcinogenicity	
IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.
Reproductive toxicity	Not classified based on available information
Specific target organ toxicity – single exposure	Not classified based on available information
Specific target organ toxicity – repeated exposure	Not classified based on available information

Further information This material contains dodecamethylcyclohexasiloxane (D6). D6 was administered to rats by whole body inhalation to 0, 1, 10 and 30 ppm for a period of 13-14 weeks. An increased incidence and severity of inflammation and hyperplasia was observed in the nasal region in the 10 and 30 ppm dose groups. These observations are consistent with a mucosal irritant, however there was little or incomplete recovery after the 28-day recovery period. The relevance of these findings to humans is unknown.

SECTION 12. Ecological information

Ecotoxicity	Not available
Persistence and degradability	Not available
Bioaccumulative potential	Not available
Mobility in soil	Not available
Other adverse effects	Not available

SECTION 13. Disposal considerations

Disposal methods	Follow applicable Federal, State and Local regulations
Resource Conservation and Recovery Act(RCRA)	This product has been evaluated for RCRA characteristics and does not meet the criteria of hazardous waste if discarded in its purchased form.
Waste from residues	Dispose of in accordance with local regulations
Contaminated packaging	Dispose of as unused product. Empty containers should be taken to an Approved waste handling site for recycling or disposal. Do not burn or use cutting torch on the empty drum.

SECTION 14. Transport information

UNRTDG	Not regulated as dangerous goods.
IATA-DGR	Not regulated as dangerous goods.
IMDG-Code	Not regulated as dangerous goods.

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

Domestic regulation 49 CFR

UN/ID/NA number	NA1993
Proper shipping name	COMBUSTIBLE LIQUID, N.O.S. (Dodecamethylpentasiloxane, Dodecamethyl cyclohexasiloxane)
Class	CBL
Packing Group	III

Labels	None
ERG Code	128
Marine pollutant	No
Remarks	Above applies only to containers over 119 gallons or 450 liters. Not regulated if shipped in packages less than or equal to 119 gallons (450 liters).

SECTION 15. Regulatory information

EPCRA – Emergency Planning and Community Right-to-Know
CERCLA Reportable Quantity This material does not contain any components with a CERCLA RQ.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards Fire Hazard

Sara 302 No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 (TRI reporting)
None present or not present in regulated quantities.

DOT Road Shipment Information (49 CFR 172.101)
Not subject to DOT.

Ocean Shipment (IMDG)
Not subject to IMDG code.

Air Shipment (IATA)
Not subject to IATA regulations

US state regulations

Massachusetts RTK – Substance List Not regulated

New Jersey Worker and Community Right-to-Know Law

CAS Number [141-63-9]	90-100 wt%	Dodecamethylpentasiloxane
CAS Number [63148-62-9]	1-5 wt%	Dimethyl Siloxane, trimethylsiloxy-terminated
CAS Number [540-97-6]	1-5 wt%	Dodecamethyl cyclohexasiloxane

Pennsylvania Worker and Community Right-to-Know Law

CAS Number [141-63-9]	90-100 wt%	Dodecamethylpentasiloxane
CAS Number [63148-62-9]	1-5 wt%	Dimethyl Siloxane, trimethylsiloxy-terminated
CAS Number [63148-62-9]	>60 wt%	Polydimethylsiloxane

Rhode Island RTK Not regulated

California Proposition 65 This product does not contain any chemicals known to the State of California to cause cancer, birth or any other reproductive defects.

International Inventories

Ingredients of this product are reported in the following inventories
Listed, exempt or notified on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed or exempted on the Japanese ENCS (Existing * New Chemical Substances) inventory
Listed or exempt on the Canadian Domestic Substances List (DSL)
Listed, exempt or notified on KECI (Korean Existing Chemicals Inventory)
Included or exempted on USA Toxic Substances Control Act (TSCA)
Listed or exempt on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed or exempt on NZIoC (New Zealand Inventory of Chemicals)
Listed on the AICS (Australian Inventory of Chemical Substances)

SECTION 16. Other information

This document was created on 5 May 2015.

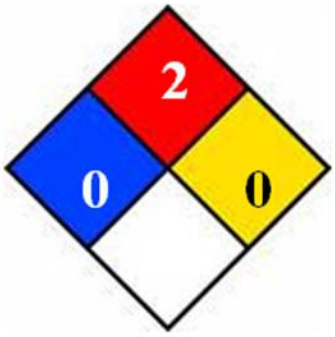
NFPA ratings

Health:	0 – Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.
Flammability:	2 – Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur and multiple finely

divided suspended solids that do not require heating before ignition can occur.

Instability: 0 - Normally stable, even under fire exposure conditions, and not reactive with water.

NFPA



HMIS III

HEALTH	0
FLAMMABILITY	2
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

DISCLAIMER

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All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, JULABO USA, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.