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## Freeze Point Chart

<u>Volume % ThermalSafe</u>	<u>Volume % PG - TS</u>	<u>Freeze pt TS degF</u>
0.0	0.0	32.0
5.0	4.8	29.3
10.0	9.6	26.2
15.0	14.3	23.2
20.0	19.1	19.6
25.0	23.9	15.1
30.0	28.7	9.5
35.0	33.4	3.9
40.0	38.2	-4.1
45.0	43.0	-13.6
50.0	47.8	-23.0
55.0	52.5	-36.2
60.0	57.3	-51.9
65.0	62.1	<-60
70.0	66.9	<-60
75.0	71.6	<-60
80.0	76.4	<-60
85.0	81.2	<-60
90.0	86.0	<-60
95.0	90.7	<-60

Rev 4/07

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# Legacy Chiller Systems, INC.

P.O. Box 1120, Diamond Springs, CA 95619

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## Material Safety Data Sheet

### 1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

24-Hour Emergency Phone number: (800) 255-3924, Chem-Tel, Inc.

Product : ThermalSafe® Heat Transfer Fluid

Product Code: TS-0100

Effective Date: 10/1/2001, Rev Date: 03/03/2003

Thermal Fluids Inc., Easton, MA 02334

### 2. COMPOSITION & INFORMATION ON INGREDIENTS

Propylene Glycol	CAS# 000057-55-6	95%
Inhibitor Package	(not specified)	<5%
Deionized water	CAS# 007732-18-5	<5%

### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

Colorless, odorless liquid. Toxic fumes released in fire situations.

POTENTIAL HEALTH EFFECTS – See section 11 for toxicological information.

EYE: May cause slight transient eye irritation. Corneal injury is unlikely.

SKIN: Essentially non-irritating to skin on prolonged contact. A single prolonged skin exposure is not likely to result in the product to be absorbed through the skin in harmful amounts. Repeated exposures may cause slight flaking, tenderness and softening of the skin.

INGESTION: Single dose oral toxicity is low. No hazards are anticipated from ingesting (swallowing) small amounts incidental to normal handling operations.

INHALATION: A single prolonged inhalation (multiple hours) exposure is not likely to cause adverse effects. Mists are not likely to be hazardous.

SYSTEMIC (OTHER TARGET ORGANS) EFFECTS: Repeated excessive ingestion may cause central nervous system effects.

CANCER INFORMATION: Products did not cause cancer in long-term animal studies.

TERATOLOGY (BIRTH DEFECTS): Birth defects are unlikely in normal use situations. Exposures having no adverse effects on the mother should have no effect on the fetus.

REPRODUCTIVE EFFECTS: In animal studies, the product has been shown not to interfere with reproduction.

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### 4. FIRST AID

EYE: Flush eyes with plenty of water.

SKIN: Wash off in flowing cool water or shower.

INGESTION: If swallowed seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

INHALATION: Remove to fresh air if effects occur. Consult with a physician.

NOTE TO PHYSICIANS: No specific antidote. Supportive care. Treatment based on judgement of the physician in response to reactions of the patient.

### 5. FIRE FIGHTING MEASURES

FLASH POINT	215°F,	102°C
METHOD	Tag Open Cup	

#### FLAMMABLE LIMITS

LFL	2.6% @ 100°C
UFL	12.5% @ 130°C

HAZARDOUS COMBUSTABLE PRODUCTS: During a fire, smoke may contain the original material in addition to unidentified toxic and/or irritating compounds. Hazardous combustion products may include and are not limited to carbon monoxide and carbon dioxide.

OTHER FLAMMIBILITY INFORMATION: Violent steam generation or eruption may occur upon application of direct water stream. Flammable concentration of vapor can accumulate at temperatures above 215°F. Liquid mist of this product can burn. Spills of these organic liquids on hot fibrous materials may lead to lowering of the auto-ignition temperatures, possibly resulting in spontaneous combustion.

EXTINGUISHING: Water fog or fine mist/spray, carbon dioxide, dry chemical, or foam can be utilized. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams or protein foams may function, but much less effectively.

MEDIA TO BE AVOIDED: DO NOT USE DIRECT WATER STREAM AS IT MAY SPREAD THE FIRE.

FIRE FIGHTING INSTRUCTIONS: Keep people away. Isolate fire area and deny unnecessary entry. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Burning liquids may be extinguished by dilution with water. Do not use direct water stream as it may spread fire.

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### FIRE FIGHTING MEASURES CONTINUED

PROTECTIVE EQUIPMENT FOR FIREFIGHTERS: Wear positive pressure self-contained breathing equipment (SCBA) and protective fire fighting clothing (helmet, coat, pants, boots and gloves). If protective equipment is not available or not used, fight fire from a protective location or a safe distance.

## 6. ACCIDENTAL RELEASE MEASURES (See Section 15 for Regulatory Information)

PROTECT PEOPLE: Clear non-emergency personnel from the area.

PROTECT THE ENVIRONMENT: Contain the liquid to prevent ground water contamination or contamination to the soil.

CLEAN UP: Clean up with an absorbent material. Sweep up and dispose according to local regulations.

## 7. HANDLING AND STORAGE

HANDLING: Product on surfaces can cause slippery conditions.

## 8. EXPOSURE CONTROLS & PERSONAL PROTECTION

ENGINEERING CONTROLS: Good ventilation should be sufficient for most situations.

### PERSONAL PROTECTION EQUIPMENT

EYE & FACE: Use Safety Glasses.

SKIN: For brief contact, no protection other than clean body covering clothing should be needed. Use impervious gloves when prolonged or multiple contact could occur.

RESPIRATORY PROTECTION: No respiratory protection should be needed.

EXPOSURE GUIDELINES: Propylene Glycol – AIHA WEEL is 50 ppm total, 10 mg/m<sup>3</sup> aerosol only.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless.

ODOR: Odorless.

VAPOR PRESSURE: 0.22 mmHG @ 20°C, 68°F

BOILING POINT: 370°F, 188°C

SOLUBILITY IN WATER: Complete

SPECIFIC GRAVITY: 1.050 @ 60/60°F, 16°C

## 10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Thermally stable at typical use temperatures.

CONDITIONS TO AVOID: Avoid temperatures above 250 degrees F. Product can degrade and decompose at elevated temperatures.

HAZARDOUS DECOMPOSITION PRODUCTS: Hazardous decomposition products depend upon temperature, air supply and the presence of other materials. Polymerization will not occur.

## 11. TOXICOLOGICAL INFORMATION

SKIN: The LD50 for skin absorption in rabbits is greater than 10,000 mg/kg.

INGESTION: The oral LD50 for female rats is approximately 20.3 g/kg.

MUTAGENICITY (Effect on genetic material): Negative

## 12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE

MOVEMENT AND PARTITIONING: Based on data for major components – bioconcentration potential is low – less than 100 or Log Pow less than 3.

DEGRADATION AND PERSISTENCE: Based on data for major components – Biodegradation under aerobic static laboratory conditions is high – BOD20 or BOD28/ThOD greater than 40%.

ECOTOXICITY: Based on data for major components – material is practically non toxic to aquatic organisms on an acute basis – LC50 greater than 100mg/L in most sensitive species.

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### 13. DISPOSAL CONSIDERATIONS

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND OR INTO ANY BODY OF WATER OR STREAMS. All disposal methods must be in compliance with all Federal, State and local regulations. Regulations may vary depending on location. Waste compliance with applicable laws is the responsibility of the waste generator. THERMAL FLUIDS HAS NO CONTROL AND ASSUMES NO RESPONSIBILITY FOR THE MANAGEMENT AND PRACTICES OF THE COMPANIES USING THIS MATERIAL. THE MATERIAL PRESENTED HERE APPLIES ONLY TO THE PRODUCT AS SHIPPED IN Its ORIGINAL CONDITION.

FOR UNUSED & CONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: recycler, reclaimer, or waste water treatment system.

As a service to its customers, Thermal Fluids, Inc. can provide names of information resources to help identify waste management companies and other facilities which recycle, reprocess or manage chemicals or plastics, and that manage used drums.

### 14. TRANSPORT INFORMATION

#### CANADIAN TDG INFORMATION:

For TDG regulatory information, if required, consult transportation regulations, product shipping papers, or Thermal Fluids directly.

### 15. REGULATORY INFORMATION (Not meant to be all-inclusive— selected regulations represented)

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial and local laws and regulations. See other sections for health and safety information.

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## U.S. REGULATIONS

SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Not to have met any hazard category.

## TOXIC SUBSTANCES CONTROL ACT (TSCA):

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

<u>CHEMICAL NAME</u>	<u>CAS NUMBER</u>	<u>LIST</u>
1,2-propanediol	000057-55-6	PA1

PA1—Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%)

## CANADIAN REGULATIONS

WHMIS information: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

This product is not a "Controlled Product" under WHMIS.