



MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

PART I *What is the material and what do I need to know in an emergency?*

1. PRODUCT IDENTIFICATION

TRADE NAME (AS LABELED): **Low Temperature Bath Fluid Catalog # 7012602**

PRODUCT USE: Heat Transfer Fluid
SYNONYMS: Mixture; None applicable.

DISTRIBUTOR'S NAME: **Techne Inc.**
ADDRESS: 743 Alexander Road
 Princeton, N.J. 08540

EMERGENCY PHONE: 800/424-9300 (CHEMTREC)
BUSINESS PHONE: (609)452-9275

EFFECTIVE DATE: July 2, 1997

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	% w/w	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV mg/m ³	STEL mg/m ³	PEL mg/m ³	STEL mg/m ³	IDLH mg/m ³	
Aliphatic Hydrocarbons	Proprietary	<100%	NE	NE	NE	NE	NE	Manufacturer recommends 300 ppm based on composition.
Other components each present in less than 1 percent concentration in this product.			None of the other components contributes any significant, additional hazard to this product. All pertinent hazard information has been provided in this Material Safety Data Sheet, per the requirements of the Federal OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalent standards.					

NE = Not Established

C = Ceiling Level See Section 16 for Definitions of Terms Used.

NOTE (1): ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1993 format.

NOTE (2): Information on this product is being claimed as proprietary. All pertinent hazard information has been provided, per the Trade Secret requirements of U.S. Federal Occupational Safety and Health Administration Standards (29 CFR 1910.1200) and Canadian WHMIS (CPR 12 and 19). Information on this mixture will be released when the conditions specified in these Standards are met.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This product is a clear, colorless, to slightly yellow, combustible liquid, with a mild, hydrocarbon odor. Vapors and mists from this product may be irritating, if inhaled. The product can be irritating to contaminated skin or eyes. The product will ignite and burn at elevated temperatures in the presence of an ignition source. If involved in a fire, this liquid will release toxic gases (i.e. carbon monoxide and carbon dioxide). This product is not reactive under typical emergency response conditions. Emergency responders must wear proper personal protective equipment and have adequate fire protection for the situation to which they are responding.

SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE: The most significant routes of exposure to this product are by inhalation of mists or vapors generated by the product and contact with the skin and eyes.

INHALATION: Inhalation of the mists or vapors of this product can be irritating to the nose, throat, mucous membranes, and other tissues of the respiratory system. Additionally, inhalation of large quantities of this product's vapors, mists or sprays (such as may occur in an enclosed or poorly ventilated area) may cause central nervous system depression. Symptoms of such over-exposure can include headache, nausea, dizziness, and drowsiness confusion. Severe inhalation over-exposure can result in unconsciousness and possibly death.

CONTACT WITH SKIN or EYES: This liquid may cause local redness or irritation of the skin following prolonged exposure. Repeated or prolonged exposure may lead to dermatitis (red, inflamed skin). Contact with the eyes will cause irritation and possibly burning, which is generally alleviated when the product is rinsed from the eyes.

SKIN ABSORPTION: Skin absorption is not known to be a potential route of over-exposure for the components of this product.

INGESTION: Ingestion of this product, while not likely to occur in an industrial setting, may cause irritation of the mouth and throat, gastric upset, stomach ache, cramps, nausea and vomiting. Additionally, aspiration of this product can result in severe, life-threatening lung damage.

INJECTION: Though not an expected route of occupational exposure for this product, injection (via punctures or lacerations in the skin) may cause local reddening, tissue swelling and discomfort.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in **Lay Terms**. Symptoms associated with over-exposure to this product are as follows:

ACUTE: The chief health hazards associated with this product would be the potential for irritation of contaminated skin and eyes, and central nervous system effects after inhalation exposures. Severe inhalation over-exposures can be fatal. Ingestion may cause gastric distress

CHRONIC: Prolonged or repeated skin exposures can lead to dermatitis (dry, chapped skin). Refer to Section 11 (Toxicological Information) for additional information.

PART II *What should I do if a hazardous situation occurs?*

4. FIRST-AID MEASURES

SKIN EXPOSURE: If the product contaminates the skin, begin decontamination with running water. Remove exposed or contaminated clothing, taking care not to contaminate eyes. The recommended flushing time is 15 minutes if pain or irritation occurs. Contaminated individual must seek medical attention, especially if irritation or redness develops.

EYE EXPOSURE: If the product enters the eyes, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Contaminated individual must seek immediate medical attention, especially if symptoms persist.

INHALATION: If vapors or mists of the product are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers.

INGESTION: If the product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, do not induce vomiting. Contaminated individuals should drink milk, egg whites, or large quantities of water. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who is unable to swallow.

Contaminated individual must be taken for medical attention if any adverse reaction occurs. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or health professional with victim.

5. FIRE-FIGHTING MEASURES

FLASH POINT °C (method): >60°C (140°F) (Closed cup)

AUTOIGNITION TEMPERATURE: 640°F.

FLAMMABLE LIMITS (in air by volume, %): Lower (LEL): ~1.3 at 77°F.
Upper (UEL): ~8.8 at 77°F.

FIRE EXTINGUISHING MATERIALS:

Water Spray: YES (cooling only)

Carbon Dioxide: YES

Foam: YES

Dry Chemical: YES

Halon: YES

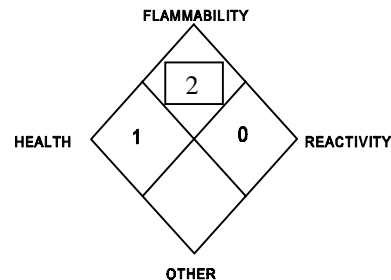
Other: Any "B" Class

UNUSUAL FIRE AND EXPLOSION HAZARDS: This is a Class II combustible liquid. The vapors of this products may travel a considerable distance to a source of ignition and flash back to a leak or open container. This product can float on water and may travel to distant locations and/or spread fire. When involved in a fire, this material may decompose and produce irritating vapors, toxic gases (e.g., oxides of carbon, potassium compounds), soot, and smoke.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: This product may be ignited by static discharge, especially if heated.

SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural fire fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Stop leak before attempting to put out fire. If the leak cannot be stopped, and there is no risk to surrounding area, let the fire burn itself out. If the flames are extinguished without stopping the leak, vapors could re-ignite. Evacuate area and fight fire from a safe distance or a protected location. Move fire exposed containers if it can be done without risk to fire fighters. Isolate materials not yet involved in fire and protect personnel. If a leak or spill has not ignited, use water spray in large quantities to disperse the vapors and to protect personnel attempting to stop a leak. If possible, prevent run-off water from entering storm drains, bodies of water, or other environmentally areas. Decontaminate fire-response equipment with soap and water solution if necessary.



6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: In case of a release, clear the affected area, protect people, and respond with trained personnel. Uncontrolled, non-incident releases should always be responded to by appropriately trained personnel in proper personal protective equipment, using pre-planned procedures. The proper personal protective equipment for incidental releases (e.g., less than 1 gallon of material) should include goggles and gloves. Face-shields and appropriate body protection should be worn during incidental clean-up operations in which splashes or sprays may be generated. In the event of a non-incident release (e.g., 55-gallon release from a leaking drum) minimum Personal Protective Equipment should be Level C: triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard-hat, and an air-purifying respirator with a high-efficiency filter. Level B, which includes a Self-Contained Breathing Apparatus, must be worn during any clean-up in which the level of oxygen is less than 19.5% or is unknown.

Absorb spilled liquid with polypads or other suitable absorbent materials. Decontaminate the area and equipment thoroughly. Place all spill residue in an appropriate container and seal. Dispose of in accordance with Federal, State, and local hazardous waste disposal regulations (see Section 13, Disposal Considerations).

PART III

How can I prevent hazardous situations from occurring?

7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Use in a well-ventilated location. Do not eat, drink, smoke or apply cosmetics while handling this material. Use ventilation and other engineering controls to minimize potential exposure to the aerosol, sprays and vapors of this product.

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Use non-sparking tools. Liquid will accumulate static charge. Electrically ground and bond all containers during transfer of this product. Do not expose empty drums or other empty containers of this product to any source of ignition. Open containers slowly, on a stable surface. Drums and other containers of this product should be properly labeled. Empty containers may contain residual amounts of this product, therefore, empty containers should be handled with care. Do not cut, weld or solder

any empty container, which has contained this product. Store containers in a cool, dry location, away from direct sunlight, or sources of intense heat. Keep containers away from incompatible chemicals (See Section 10, Stability and Reactivity). Keep drums and other containers of this product tightly closed when not in use. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely, if necessary. Decontaminate equipment using soapy water before maintenance begins.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to minimize exposure to mists or sprays of this product. Use a non-sparking, grounded ventilation system separate from other exhaust ventilation systems. Exhaust directly to the outside, taking necessary environment precautions. Prudent practice is to ensure eyewash/safety shower stations are available near areas where this product is used.

RESPIRATORY PROTECTION: None needed for normal circumstances of use. Maintain airborne contaminant concentrations below exposure limits listed in Section 2 (Composition and Information on Ingredients). If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134, or applicable State regulations. Use supplied air respiration protection if oxygen levels are below 19.5% or are unknown.

EYE PROTECTION: Splash goggles or safety glasses.

HAND PROTECTION: Wear rubber or neoprene gloves for routine industrial use. Use triple gloves for spill response, as stated in Section 6 (Accidental Release Measures) of this MSDS.

BODY PROTECTION: Use body protection appropriate for task.

PERSONAL PROTECTIVE EQUIPMENT LEVEL: C

9. PHYSICAL and CHEMICAL PROPERTIES

RELATIVE VAPOR DENSITY (air = 1): Not available.

EVAPORATION RATE (n-BuAc=1): less than 0.1

SPECIFIC GRAVITY (water = 1): <1

FREEZING/MELTING POINT or RANGE: <-76°F

SOLUBILITY IN WATER: <1%, Practically insoluble

BOILING POINT: 376 to 401°F

VAPOR PRESSURE, mbar @ 20 °C: 23

pH: not applicable

ODOR THRESHOLD: Not applicable.

COEFFICIENT WATER/OIL DISTRIBUTION: Not available.

APPEARANCE AND COLOR: This product is a clear, colorless, with a mild, hydrocarbon odor.

HOW TO DETECT THIS SUBSTANCE (warning properties): The appearance and odor may act as a distinguishing characteristic of this product.

10. STABILITY and REACTIVITY

STABILITY: Stable

DECOMPOSITION PRODUCTS: Ignition of this product can produce carbon dioxide, carbon monoxide, and other organic decomposition products.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Strong oxidizers.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Contact with strong oxidizers, exposure to excessive heat, or to sparks, flame, or other ignition sources.

PART IV

Is there any other useful information about this material?

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: Additional toxicology information for components greater than 1 percent in concentration is provided below.

ALIPHATIC HYDROCARBON:

DILUENT:

No toxicology data are currently available for this component of the product. Oral-Rat LD50:4390 mg/kgOral-Rat50:

SUSPECTED CANCER AGENT: The ingredients of this product are not listed on the following lists: FEDERAL OSHA Z LIST, NTP, IARC or CAL/OSHA, and therefore are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT: Repeated or prolonged exposure to this product may cause irritation to contaminated tissues.

SENSITIZATION TO THE PRODUCT: No components of this product are reported to be sensitizers upon prolonged or repeated exposures.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.

Mutagenicity: This product is not reported to produce mutagenic effects in humans.

Embryotoxicity: This product is not reported to produce embryotoxic effects in humans.

Teratogenicity: This product is not reported to cause teratogenic effects in humans.

Reproductive Toxicity: This product is not reported to cause reproductive effects in humans.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing dermatitis and other skin disorders may be aggravated by skin contact with this product.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and reduce exposures.

BIOLOGICAL EXPOSURE INDICES: Currently, there are no Biological Indices (BEIs) associated with the components of this product.

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY: The components of this product will be degraded over time into other organic compounds.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: This product may be harmful to contaminated plant and animal life (especially if large quantities are released). Refer to Section 11 (Toxicological Information) for specific information regarding effects of this product's components on test animals.

EFFECT OF CHEMICAL ON AQUATIC LIFE: This product may be harmful to aquatic life if large quantities are released into bodies of water.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

EPA WASTE NUMBER: Not applicable to wastes consisting only of this product.

14. TRANSPORTATION INFORMATION

THIS MATERIAL IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION

PROPER SHIPPING NAME: Combustible liquid, n.o.s.

HAZARD CLASS NUMBER and DESCRIPTION: (Combustible).

UN IDENTIFICATION NUMBER: NA 1993.

PACKING GROUP: III

DOT LABEL(S) REQUIRED: None.

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996): 128

NOTE: Refer to 49 CFR 173.150(f) for exceptions applicable to combustible liquids shipped in non-bulk packaging (under 450L-119 gallons).

MARINE POLLUTANT: No component of this product is listed as a Marine Pollutant (49 CFR 172.101, Appendix B).

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: THIS MATERIAL IS NOT CONSIDERED AS DANGEROUS GOODS.

15. REGULATORY INFORMATION

U.S. SARA REPORTING REQUIREMENTS: The components of this product are not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act.

CANADIAN DSL STATUS: The components listed in Section 2 (Composition and Information on Ingredients) are listed on the

DSL Inventory.

U.S. TSCA STATUS: The components of this product listed in Section 2 (Composition and information on Ingredients) are on the TSCA Inventory.

U.S. SARA THRESHOLD PLANNING QUANTITY: Not applicable.

U.S. CERCLA REPORTABLE QUANTITIES (RQ): Not applicable.

OTHER U.S. FEDERAL REGULATIONS: Not applicable.

U.S. STATE REGULATORY INFORMATION: Components of this product are covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: No.

California - Permissible Exposure Limits for Chemical Contaminants: No.

Florida - Substance List: No.

Illinois - Toxic Substance List: No.

Kansas - Section 302/313 List: No.

Massachusetts - Substance List: No.

Michigan - Critical Materials Register: No.

Minnesota - List of Hazardous Substances: No.

Missouri - Employer Information/Toxic Substance List: No.

New Jersey - Right to Know Hazardous Substance List: Diluent.

North Dakota - List of Hazardous Chemicals, Reportable Quantities: No.

Pennsylvania - Hazardous Substance List: No.

Rhode Island - Hazardous Substance List: No.

Texas - Hazardous Substance List: No.

West Virginia - Hazardous Substance List: No.

Wisconsin - Toxic and Hazardous Substances: No.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): No component of this solution is on the California Proposition 65 lists.

LABELING (Precautionary Statements): **CAUTION!** COMBUSTIBLE LIQUID AND VAPORS. FLASH POINT=62°C(142°F). MAY CAUSE SKIN AND EYE IRRITATION. HARMFUL IF INHALED. CAN CAUSE CENTRAL NERVOUS SYSTEM EFFECTS. HARMFUL IF SWALLOWED-ASPIRATION HAZARD. Avoid contact with skin, eyes, and clothing. Avoid prolonged skin contact. Do not get on skin or in eyes. Keep away from heat, sparks and flame. Use non-sparking tools. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Use in well-ventilated area. Use gloves, safety goggles, and appropriate body protection. FIRST-AID: In case of skin or eye contact, flush with water for 15 minutes. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If ingested, do not induce vomiting. Get medical attention if adverse reactions occur. IN CASE OF FIRE: Use water fog, dry chemical, CO₂ or foam. IN CASE OF SPILL: Absorb with an inert material (i.e. polypads), then place in a suitable container. Consult Material Safety Data Sheet for additional information.

CANADIAN WHMIS SYMBOLS: Not applicable.

16. OTHER INFORMATION

Date of Printing:

May 28, 1999

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Dynalene Heat Transfer Fluids assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, Dynalene Heat Transfer Fluids assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these which are commonly used include the following:

CAS #: This is the Chemical Abstract Service Number which uniquely identifies each constituent. It is used for computer-related searching.

EXPOSURE LIMITS IN AIR:

ACGIH - American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits.

TLV - Threshold Limit Value - an airborne concentration of a substance

which represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour **Time Weighted Average (TWA)**, the 15-minute **Short Term Exposure Limit**, and the instantaneous **Ceiling Level**.

Skin absorption effects must also be considered.

OSHA - U.S. Occupational Safety and Health Administration.

PEL - Permissible Exposure Limit - This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL which was vacated by Court Order.

IDLH - Immediately Dangerous to Life and Health - This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. **The DFG - MAK** is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL.

NIOSH is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). NIOSH issues exposure guidelines called **Recommended Exposure Levels (RELs)**. When no exposure guidelines are established, an entry of **NE** is made for reference.

HAZARD RATINGS:

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: Health Hazard: **0** (minimal acute or chronic exposure hazard); **1** (slight acute or chronic exposure hazard); **2** (moderate acute or significant chronic exposure hazard); **3** (severe acute exposure hazard; onetime overexposure can result in permanent injury and may be fatal); **4** (extreme acute exposure hazard; onetime overexposure can be fatal). Flammability Hazard: **0** (minimal hazard); **1** (materials that require substantial pre-heating before burning); **2** (combustible liquid or solids; liquids with a flash point of 38-93°C [100-200°F]); **3** (Class IB and IC flammable liquids with flash points below 38°C [100°F]); **4** (Class IA flammable liquids with flash points below 23°C [73°F] and boiling points below 38°C [100°F]). Reactivity Hazard: **0** (normally stable); **1** (material that can become unstable at elevated temperatures or which can react slightly with water); **2** (materials that are unstable but do not detonate or which can react violently with water); **3** (materials that can detonate when initiated or which can react explosively with water); **4** (materials that can detonate at normal temperatures or pressures).

NATIONAL FIRE PROTECTION ASSOCIATION: Health Hazard: **0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure could cause death or major residual injury). Flammability Hazard and Reactivity Hazard: Refer to definitions for "Hazardous Materials Identification System".

FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the **National Fire Protection Association (NFPA)**. Flash Point - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. Autoignition Temperature: The minimum temperature required to initiate combustion in air with no other source of ignition. LEL - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. UEL - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:

Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD₅₀** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC₅₀** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m³** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Data from several sources are used to evaluate the cancer-causing potential of the material. The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause death. **BEI** - Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.

REGULATORY INFORMATION:

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. **Superfund Amendments and Reauthorization Act (SARA)**; the **Canadian Domestic Substances List (DSL)**; the U.S. **Toxic Substance Control Act (TSCA)**; Marine Pollutant status according to the **DOT**; California's Safe Drinking Water Act (**Proposition 65**); the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund)**; and various state regulations. This section also includes information on the precautionary warnings which appear on the materials package label.

Low Temperature Bath Fluid Specifications Sheet

Typical Properties – Techne Low Temperature bath fluid Catalog #7012602

AppearanceTransparent

ColorClear

CompositionAliphatic Hydrocarbon Blend

Viscosity.....15cP @ -60°F

Density0.81 g/cc @-29°C (-20°F)

Specific Gravity0.77 @ 20°C (68°)

Specific Heat~0.425 Btu/(lb)(°F) @ -29°C (-20°F)

Thermal Conductivity~0.067 Btu(hr)(ft²)(°F/ft) @-29°C (-20°F)

Boiling Point 376°F to 401°F

Freezing & Melting Point<118°C (<-180°F)

Flash Point (tag closed cup).....140°F

Recommended Use Range**-73°C to 125°C (-100°F to 257°F)

Notes:

1) Techne low temperature bath fluid or its vapor, like many other heat transfer fluids, may ignite if released into the environment and exposed to hot surfaces, sparks, open flames, or other source of ignition.



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