



Material Safety Data Sheet

Dow Chemical Canada ULC

Product Name: UCON(TM) HEAT TRANSFER FLUID 500

Issue Date: 2008.08.04

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Dow Chemical Canada ULC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name

UCON(TM) HEAT TRANSFER FLUID 500

COMPANY IDENTIFICATION

Dow Chemical Canada ULC
A Subsidiary of The Dow Chemical Company
4445 Marie-Victorin Blvd
Varenes, QC J3X 1T3
Canada

For MSDS updates and Product Information: 800-331-6451

Prepared By: Prepared for use in Canada by EH&S, Product Regulatory
Management Department.
450-652-1029

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Customer Information Number: 800-331-6451

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: (989) 636-4400

Local Emergency Contact: 989-636-4400

2. Hazards Identification

Emergency Overview

Color: Brown

Physical State: Liquid

Odor: Mild

Hazards of product:

WARNING! May cause allergic skin reaction.

Potential Health Effects

Eye Contact: May cause slight temporary eye irritation. Corneal injury is unlikely.

Skin Contact: Brief contact is essentially nonirritating to skin.

Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Skin Sensitization: A component in this mixture has caused allergic skin reactions in humans.

Inhalation: At room temperature, exposure to vapor is minimal due to low volatility; single exposure is not likely to be hazardous. Vapor from heated material or mist may cause respiratory irritation.

Ingestion: Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

Effects of Repeated Exposure: Mist may cause irritation of upper respiratory tract (nose and throat) and lungs.

3. Composition/information on ingredients

Component	CAS #	Amount W/W
Polyalkylene glycol monobutyl ether	9038-95-3	>= 95.0 %
N-phenyl-alpha-naphthylamine	90-30-2	>= 1.0 - <= 5.0 %

Amounts are presented as percentages by weight.

4. First-aid measures

Eye Contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Skin Contact: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

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

Notes to Physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. Fire Fighting Measures

Extinguishing Media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. May spread fire. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

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). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. 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.

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. Combustion products may include trace amounts of: Nitrogen oxides.

See Section 9 for related Physical Properties

6. Accidental Release Measures

Steps to be Taken if Material is Released or Spilled: Contain spilled material if possible. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

Personal Precautions: Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to Section 7, Handling, for additional precautionary measures.

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

7. Handling and Storage

Handling

General Handling: Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Do not use sodium nitrite or other nitrosating agents in formulations containing this product. Suspected cancer-causing nitrosamines could be formed. 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.

Storage

Store in the following material(s): 316 stainless steel. Carbon steel. Glass-lined container. Polypropylene. Polyethylene-lined container. Stainless steel. Teflon. This material may soften and lift certain paint and surface coatings. Use product promptly after opening. Store in original unopened container. Unopened containers of material stored beyond the recommended shelf life should be retested against the sales specifications before use. Additional storage and handling information on this product may be obtained by calling your Dow sales or customer service contact.

Shelf life: Use within
24 Months

8. Exposure Controls / Personal Protection

Exposure Limits

Consult local authorities for recommended exposure limits.
None established

Personal Protection

Eye/Face Protection: Use safety glasses.

Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Neoprene. Natural rubber ("latex"). Viton. Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR"). **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.

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 material is heated or sprayed, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Engineering Controls

Ventilation: 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. Local exhaust ventilation may be necessary for some operations.

9. Physical and Chemical Properties
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Physical State	Liquid
Color	Brown
Odor	Mild
Flash Point - Closed Cup	218 °C <i>ASTM D93</i>
Flash Point - Open Cup	302 °C <i>ASTM D92</i>
Flammable Limits In Air	Lower: No test data available Upper: No test data available
Autoignition Temperature	<i>No test data available</i>
Vapor Pressure	< 0.01 mmHg @ 20 °C <i>ASTM E1719</i>
Boiling Point (760 mmHg)	> 200 °C <i>Calculated</i> .
Vapor Density (air = 1)	>1 <i>Calculated</i>
Specific Gravity (H₂O = 1)	1.038 20 °C/20 °C <i>Calculated</i>
Freezing Point	See Pour Point
Melting Point	No test data available
Solubility in Water (by weight)	100 % <i>Visual</i> Approximately
pH	No test data available
Decomposition Temperature	No test data available
Kinematic Viscosity	54.4 - 63.7 mm ² /s @ 37.8 °C <i>ASTM D445</i>
Pour point	-48 °C <i>ASTM D97</i>
Volatile Organic Compounds	0.00 g/l <i>EPA Method No. 24</i>

10. Stability and Reactivity

Stability/Instability

Thermally stable at typical use temperatures.

Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible Materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

Hazardous Polymerization

Will not occur.

Thermal Decomposition

Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aldehydes. Alcohols. Ethers. Hydrocarbons. Ketones. Organic acids. Polymer fragments.

11. Toxicological Information

Acute Toxicity

Ingestion

Single dose oral LD50 has not been determined.

Skin Absorption

The dermal LD50 has not been determined.

Based on information for component(s): Estimated LD50, Rabbit > 2,000 mg/kg

Sensitization

Skin

A component in this mixture has caused allergic skin reactions in humans.

Repeated Dose Toxicity

Mist may cause irritation of upper respiratory tract (nose and throat) and lungs.

Chronic Toxicity and Carcinogenicity

Based on information for component(s): Did not cause cancer in laboratory animals.

Developmental Toxicity

No relevant information found.

Reproductive Toxicity

No relevant information found.

Genetic Toxicology

For the minor component(s): In vitro genetic toxicity studies were negative in some cases and positive in other cases.

Component Toxicology - Polyalkylene glycol monobutyl ether

Inhalation	For similar material(s): LC50, Aerosol, Rat > 5.01 mg/l
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Component Toxicology - Polyalkylene glycol monobutyl ether

Ingestion	LD50, Rat, male > 7,000 mg/kg
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Ingestion	LD50, Rat, female > 8,000 mg/kg
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Component Toxicology - N-phenyl-alpha-naphthylamine

Ingestion	LD50, Rat 1,050 - 2,380 mg/kg
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12. Ecological Information

ENVIRONMENTAL FATE

Movement & Partitioning

No bioconcentration is expected because of the relatively high water solubility.

Persistence and Degradability

Biodegradation under aerobic static laboratory conditions is moderate (BOD20 or BOD28/ThOD between 10 and 40%).

Biological oxygen demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
0 %	8 %	15 %	

Chemical Oxygen Demand: 2.01 mg/mg

ECOTOXICITY

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

LC50, fathead minnow (*Pimephales promelas*), 96 h: 55 mg/l

Aquatic Invertebrate Acute Toxicity

LC50, water flea *Daphnia magna*, 48 h: 25 mg/l

Toxicity to Micro-organisms

IC50; bacteria, 16 h: > 1,000 mg/l

13. Disposal Considerations

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 MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device. As a service to its customers, Dow 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. Telephone Dow's Customer Information Group at 1-800-258-2436 or 1-989-832-1556 (U.S.), or 1-800-331-6451 (Canada) for further details.

14. Transport Information

TDG Small container

NOT REGULATED

TDG Large container

NOT REGULATED

IMDG

NOT REGULATED

ICAO/IATA
NOT REGULATED

15. Regulatory Information

US. Toxic Substances Control Act

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

European Inventory of Existing Commercial Chemical Substances (EINECS)

This product is a polymer according to the definition in Directive 92/32/EEC (7th Amendment to Directive 67/548/EEC) and all of its starting materials and intentional additives are listed in the European Inventory of Existing Commercial Chemical Substances (EINECS) or in compliance with European (EU) chemical inventory requirements.

CEPA - Domestic Substances List (DSL)

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

Hazardous Products Act Information: CPR Compliance

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

Hazardous Products Act Information: WHMIS Classification

D2B	Skin Sensitizer
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Hazardous Products Act Information: Hazardous Ingredients

This product contains the following ingredients which are Controlled Products and/or are on the Ingredient Disclosure List (Canadian HPA Section 13 and 14).

Component	CAS #	Amount W/W
N-phenyl-alpha-naphthylamine	90-30-2	>= 1.0 - <= 5.0 %

16. Other Information

Hazard Rating System

NFPA	Health	Fire	Reactivity
	1	1	0

Recommended Uses and Restrictions

Selection of the appropriate polyglycol product for a specific application requires knowledge of the fluid requirements of the application, awareness of the most important of these requirements, and a match-up with the properties of the various polyglycol materials. Polyglycol products can be formulated for use in numerous industry applications such as hydraulic fluids, quenchants, compressor and refrigeration lubricants, heat transfer fluids, machinery lubricants, solder assist fluids, metalworking lubricants, textile finishing, etc. 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.

Revision

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Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

N/A	Not available
W/W	Weight/Weight

OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
VOL/VOL	Volume/Volume

Dow Chemical Canada ULC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided 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 between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.