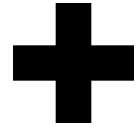




THE DOW CHEMICAL COMPANY MATERIAL SAFETY DATA SHEET



Product Name: UCON(TM) QUENCHANT HT
MSDS#: 1385

Effective Date: 05/19/2004
Page 1 of 13

Dow (hereinafter, and for purposes of this MSDS only, refers to The Dow Chemical Company and to Dow Chemical Canada Inc.) encourages and expects you to read and understand the entire MSDS, as there is important information throughout the document. Dow expects you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 IDENTIFICATION

Product Name UCON(TM) QUENCHANT HT

1.2 COMPANY IDENTIFICATION

The Dow Chemical Company
Midland, MI 48674

1.3 EMERGENCY TELEPHONE NUMBER

24-HOUR EMERGENCY TELEPHONE NUMBER: (989)636-4400.
Customer Information Number: 1-800-258-2436.

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT HT
MSDS#: 1385

Effective Date: 05/19/2004
Page 2 of 13

2. COMPOSITION INFORMATION

<u>Component</u>	<u>CAS #</u>	<u>Amount (%W/W)</u>
Polyalkylene glycol	Trade secret	< 55%
Water	7732-18-5	< 50%
Sodium nitrite	7632-00-0	< 3%

3. HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Appearance	Transparent straw-colored
Physical State	Liquid
Odor	Mild
Hazards of product	WARNING! HARMFUL IF SWALLOWED - CONTAINS INORGANIC NITRITE. VAPOR, AEROSOL OR MIST OF THE PRODUCT AND THERMAL DEGRADATION PRODUCTS GENERATED AT HIGH TEMPERATURE CAN BE IRRITATING AND HARMFUL IF INHALED.

3.2 POTENTIAL HEALTH EFFECTS

Effects of Single Acute Overexposure

Inhalation Short-term harmful health effects are not expected from vapor generated at ambient temperature.

Eye Contact No evidence of harmful effects from available information.

Skin Contact No evidence of harmful effects from available information.

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT HT
MSDS#: 1385

Effective Date: 05/19/2004
Page 3 of 13

Skin Absorption No evidence of harmful effects from available information.

Swallowing May cause irregular heart rate, decreased blood pressure, roaring sound in ears, with throbbing persistent headache, dizziness, disorientation, nausea, vomiting, irregular respiration, with possibility of fainting, convulsions, and collapse.

Chronic, Prolonged or Repeated Overexposure

Effects of Repeated Overexposure No adverse effects anticipated from available information.

Other Effects of Overexposure Overexposure to vapor, aerosol or mist generated at high temperature may result in eye and respiratory tract irritation, dizziness, nausea and the inhalation of harmful amounts of material. Acute overexposure to nitrogen oxides may cause irritation of the respiratory tract and result in coughing, breathing difficulties and other respiratory reactions.

Medical Conditions Aggravated by Exposure

There is evidence that persons with glucose-6-phosphate dehydrogenase deficiency may be more sensitive to the toxicity of nitrites.

See Section 11 for toxicological information and additional information about potential health effects.

3.3 POTENTIAL ENVIRONMENTAL EFFECTS

See Section 12 for Ecological Information.

4. FIRST AID PROCEDURES

4.1 INHALATION

Remove to fresh air.

4.2 EYE CONTACT

Flush eyes thoroughly with water for several minutes. Remove contact lenses, if worn.

4.3 SKIN CONTACT

Wash skin with plenty of water.

4.4 SWALLOWING

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT HT
MSDS#: 1385

Effective Date: 05/19/2004
Page 4 of 13

If patient is fully conscious, rinse mouth with water. Give two glasses of water. Induce vomiting. This should be done only by medical or experienced first-aid personnel. Obtain medical attention.

4.5 NOTES TO PHYSICIAN

The principal hazard of this material is due to the nitrite content. Administer oxygen to relieve headache and a general sense of weakness. Determine methemoglobin concentration in blood every 3-6 hours for first 24 hours. It should return to normal within 24 hours. The treatment of toxic methemoglobin may include the intravenous administration of methylene blue in a dose of 2 mg/kg. Improvement should be evident within one hour. The dose may be repeated if necessary. Otherwise, treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES - REFER TO SECTION 9, PHYSICAL AND CHEMICAL PROPERTIES

5.2 EXTINGUISHING MEDIA

Non-flammable (aqueous solution): After water evaporates, remaining material will burn. Use alcohol-type or all-purpose-type foam, applied by manufacturer's recommended techniques for large fires. Use carbon dioxide or dry chemical media for small fires.

5.3 FIRE FIGHTING PROCEDURES

Do not direct a solid stream of water or foam into hot, burning pools; this may cause frothing and increase fire intensity.

5.4 SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Use self-contained breathing apparatus and protective clothing.

5.5 UNUSUAL FIRE AND EXPLOSION HAZARDS

During a fire, oxides of nitrogen may be produced.

5.6 HAZARDOUS COMBUSTION PRODUCTS

Combustion may produce the following products: Oxides of carbon and nitrogen. Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an asphyxiant. Acute overexposure to the products of combustion may result in irritation of the respiratory tract. See Section 3.2 - Other Effects of Overexposure. See Section 8.2 - Personal Protection (Ventilation).

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT HT
MSDS#: 1385

Effective Date: 05/19/2004
Page 5 of 13

6. ACCIDENTAL RELEASE MEASURES

Steps to be Taken if Material is Released or Spilled:

Small spills can be flushed with large amounts of water; larger spills should be collected for disposal.

Personal Precautions: Wear suitable protective equipment. See Section 8.2 - Personal Protection.

7. HANDLING AND STORAGE

7.1 HANDLING

General Handling

Do not swallow.
Avoid breathing vapor, aerosol and mist.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

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Ventilation

Steam and small amounts of organic vapors can be evolved during quenching. The vapors could be irritating and toxic if allowed to accumulate. Adequate workplace ventilation should be provided to prevent irritation and accumulation of vapors; this may require use of a special, local ventilation system in the immediate area where vapors are released.

Other Precautions

Do not mix with amines. A nitrosamine, which may cause cancer, may be formed. Where this product is burned under conditions of relatively complete combustion, the major products are carbon dioxide and water vapor. Where this material is subjected to overheating (thermal degradation) but does not burn, the degradation products can be such things as organic acids (formic, acetic acids), aldehydes, esters, ketones, etc. These vapors or fumes can be highly irritating to the eyes, nose and throat. Special ventilation may be needed. In normal use, no respiratory protective equipment should be needed, but self-contained breathing apparatus should be available for use in emergencies. Small amounts of organic vapors can be formed by oxidation of quenchant. These vapors could be irritating or toxic if released in a poorly ventilated area. Good ventilation should be maintained in the area around quench tanks.

7.2 STORAGE

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT HT
MSDS#: 1385

Effective Date: 05/19/2004
Page 6 of 13

Storage at room temperature recommended. Product freezes at -0°C ($\sim 32^{\circ}\text{F}$) and becomes highly viscous at temperatures above freezing.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 EXPOSURE LIMITS

None established by OSHA, ACGIH or Dow.

8.2 PERSONAL PROTECTION

Respiratory Protection: None expected to be needed at low temperatures. See Section 7.1 - Other Precautions.

Ventilation: Steam and small amounts of organic vapors can be evolved during quenching. The vapors could be irritating and toxic if allowed to accumulate. Adequate workplace ventilation should be provided to prevent irritation and accumulation of vapors; this may require use of a special, local ventilation system in the immediate area where vapors are released.

Eye Protection: Safety Glasses

Protective Gloves: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur.

Other Protective Equipment: Eye Bath, Safety Shower

8.3 ENGINEERING CONTROLS

Use good housekeeping and acceptable industrial engineering practices.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Appearance: Transparent straw-colored

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT HT
MSDS#: 1385

Effective Date: 05/19/2004
Page 7 of 13

Odor: Mild

Flash Point - Closed Cup: *Pensky-Martens Closed Cup* None.

Flammable Limits In Air:

Lower	Not Determined, Aqueous System
Upper	Not Determined, Aqueous System

Autoignition Temperature: *Not applicable.*

Vapor Pressure: 14 mmHg 20 °C

Boiling Point (760 mmHg): 101.1 °C 214 °F

Vapor Density (air = 1): 1.3

Specific Gravity (H₂O = 1): 1.102 20 °C / 20 °C

Freezing Point: *Pour point* -20 °C -3 °F

Melting Point: *Not applicable (for liquids)*

Solubility in Water (by weight): 100 %

pH: *Not currently available.*

Evaporation Rate (Butyl Acetate = 1): 1

10. STABILITY AND REACTIVITY

10.1 STABILITY/INSTABILITY Stable.

Incompatible Materials: Normally unreactive; however, avoid strong bases at high temperatures, strong acids, strong oxidizing agents and materials reactive with hydroxyl compounds. If the pH of the product is allowed to fall below 6.5, either as a result of the addition of acid or due to severe oxidation, the formation of nitrogen oxides may occur.

Thermal Decomposition: Where this product is burned under conditions of relatively complete combustion, the major products are carbon dioxide and water vapor. Where this material is subjected to overheating (thermal degradation) but does not burn, the degradation products can be such things as organic acids (formic, acetic acids), aldehydes, esters, ketones,

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT HT
MSDS#: 1385

Effective Date: 05/19/2004
Page 8 of 13

etc. These vapors or fumes can be highly irritating to the eyes, nose and throat. Special ventilation may be needed. In normal use, no respiratory protective equipment should be needed, but self-contained breathing apparatus should be available for use in emergencies. Where this material is subjected to overheating (thermal degradation) but does not burn, the degradation products can be such things as organic acids (formic, acetic acids), aldehydes, esters, ketones, etc. These vapors or fumes can be highly irritating to the eyes, nose and throat. Special ventilation may be needed.

10.2 HAZARDOUS POLYMERIZATION Will not occur.

11. TOXICOLOGICAL INFORMATION

SIGNIFICANT DATA WITH POSSIBLE RELEVANCE TO HUMANS

Contains sodium nitrite which may react with amines to form a nitrosamine. Some nitrosamines have been shown to be carcinogenic in laboratory animals.

12. ECOLOGICAL INFORMATION

12.1 ENVIRONMENTAL FATE

Information may be available, call Dow.

12.2 ECOTOXICITY

Information may be available, call Dow.

12.3 FURTHER INFORMATION

None.

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT HT
MSDS#: 1385

Effective Date: 05/19/2004
Page 9 of 13

13. DISPOSAL CONSIDERATIONS

13.1 DISPOSAL

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. DOW HAS 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 2 (Composition/ Information on Ingredients). 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

14.1 U.S. D.O.T.

NON-BULK

Proper Shipping Name : NOT REGULATED

BULK

Proper Shipping Name : ENVIRONMENTALLY HAZARDOUS SUBSTANCES LIQUID, NOS

Technical Name : CONTAINS SODIUM NITRITE

Hazard Class : 9

ID Number : UN3082

Packing Group : PG III

Reportable Quantity : 4,762 LB

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT HT
MSDS#: 1385

Effective Date: 05/19/2004
Page 10 of 13

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. 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.

15. REGULATORY INFORMATION

15.1 FEDERAL/NATIONAL

OSHA HAZARD COMMUNICATION STANDARD

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986) SECTION 313

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act 1986 and which are listed in 40 CFR Part 372.

Component	CAS #	Amount
Sodium nitrite	7632-00-0	<= 3.0000%

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986) SECTION 302

To the best of our knowledge this product does not contain chemicals at levels which require reporting under this statute.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986) SECTIONS 311 AND 312

Delayed (Chronic) Health Hazard : Yes
Fire Hazard : No
Immediate (Acute) Health Hazard : Yes
Reactive Hazard : No

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT HT
MSDS#: 1385

Effective Date: 05/19/2004
Page 11 of 13

Sudden Release of Pressure Hazard : No

TOXIC SUBSTANCES CONTROL ACT (TSCA)

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)

The components of this product are on the EINECS inventory or are exempt from EINECS 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.

15.2 STATE/LOCAL

PENNSYLVANIA (WORKER AND COMMUNITY RIGHT-TO-KNOW ACT): PENNSYLVANIA HAZARDOUS SUBSTANCES LIST AND/OR PENNSYLVANIA ENVIRONMENTAL HAZARDOUS SUBSTANCE LIST:

The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Component	CAS #	Amount
Sodium nitrite	7632-00-0	<= 3.0000%

PENNSYLVANIA (WORKER AND COMMUNITY RIGHT-TO-KNOW ACT): PENNSYLVANIA SPECIAL HAZARDOUS SUBSTANCES LIST:

To the best of our knowledge this product does not contain chemicals at levels which require reporting under this statute.

CALIFORNIA PROPOSITION 65 (SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986)

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT HT
MSDS#: 1385

Effective Date: 05/19/2004
Page 12 of 13

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

CALIFORNIA SCAQMD RULE 443.1 (SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 443.1, LABELING OF MATERIALS CONTAINING ORGANIC SOLVENTS)

VOC: Volatiles = Substances with a vapor pressure of > 0.5 mmHg @ 104 °C (219.2 °F)
|| 0.00 g/l VOC

This section provides selected regulatory information on this product including its components. This is not intended to include all regulations. It is the responsibility of the user to know and comply with all applicable rules, regulations and laws relating to the product being used.

16. OTHER INFORMATION

16.1 ADDITIONAL INFORMATION

ADDITIONAL INFORMATION: Additional product safety information on this product may be obtained by calling Dow's Customer Information Group at 1-800-258-2436 (U.S.) or 1-800-331-6451 (Canada).

Ask for the brochure:

UCON Fluids and Lubricants (Family Brochure). Ask about the availability of specific product and end-use bulletins.

16.2 HAZARD RATING SYSTEM

NFPA ratings for this product are: H - 0 F - 0 R - 0

These ratings are part of a specific hazard communication program and should be disregarded where individuals are not trained in the use of this hazard rating system. You should be familiar with the hazard communication programs applicable to your workplace.

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT HT
MSDS#: 1385

Effective Date: 05/19/2004
Page 13 of 13

16.3 RECOMMENDED USES AND RESTRICTIONS

FOR INDUSTRY USE ONLY

16.4 REVISION

Version: 8.0

Revision: 05/19/2004

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

16.5 LEGEND

Bacterial/NA	Non Acclimated Bacteria
F	Fire
H	Health
IHG	Industrial Hygiene Guideline
N/A	Not available
NFPA	National Fire Protection Association
O	Oxidizer
R	Reactivity
TS	Trade secret
VOL/VOL	Volume/Volume
W	Water Reactive
W/W	Weight/Weight

NOTICE: Dow urges each customer or recipient of this MSDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this MSDS 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 its 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 Dow, 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 MSDSs, Dow is not and cannot be responsible for MSDSs obtained from any source other than Dow. If you have obtained a Dow MSDS from a non-Dow source or if you are not sure that a Dow MSDS is current, please contact Dow for the most current version.