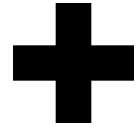




UNION CARBIDE CORPORATION
A Subsidiary of The Dow Chemical Company
MATERIAL SAFETY DATA SHEET



Product Name: UCON(TM) QUENCHANT B
MSDS#: 2159

Effective Date: 08/01/2000
Page 1 of 14

Union Carbide urges each customer or recipient of this MSDS to study it carefully to become aware of and understand the hazards associated with the product. The reader should consider consulting reference works or individuals who are experts in ventilation, toxicology, and fire prevention, as necessary or appropriate to use and understand the data contained in this MSDS.

To promote safe handling, each customer or recipient should: 1) Notify its employees, agents, contractors and others whom it knows or believes will use this material of the information in this MSDS and any other information regarding hazards or safety; 2) Furnish this same information to each of its customers for the product; and 3) Request its customers to notify their employees, customers, and other users of the product of this information.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 IDENTIFICATION

Product Name	UCON(TM) QUENCHANT B
Chemical Name	Mixture
Chemical Family	Polyalkylene Glycol
Formula	Not available
Synonym	None

1.2 COMPANY IDENTIFICATION

Union Carbide Corporation
A Subsidiary of The Dow Chemical Company
39 Old Ridgebury Road
Danbury, CT 06817-0001

1.3 EMERGENCY TELEPHONE NUMBER

24 hours a day: CHEMTREC 1-800-424-9300.

Number for non-emergency questions concerning MSDS (732) 563-5522
Additional information on this product may be obtained by calling the Union Carbide Corporation Customer Service Center at 1-800-568-4000.

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT B
MSDS#: 2159

Effective Date: 08/01/2000
Page 2 of 14

2. COMPOSITION INFORMATION

Component	CAS #	Amount (%W/W)
Water	7732-18-5	< 65%
Polyalkylene glycol	Trade secret	< 45%
Sodium nitrite	7632-00-0	< 3%

3. HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Appearance Straw-colored

Physical State Liquid

Odor Characteristic

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.

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT B
MSDS#: 2159

Effective Date: 08/01/2000
Page 3 of 14

Skin Contact No evidence of harmful effects from available information.

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.

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 soap and water.

4.4 SWALLOWING

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.

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT B
MSDS#: 2159

Effective Date: 08/01/2000
Page 4 of 14

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

Flash Point - Closed Cup: None.

Flash Point - Open Cup: None.

Autoignition Temperature: *Not currently available.*

Flammable Limits In Air:

Lower *Not Determined, Aqueous System*

Upper *Not Determined, Aqueous System*

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 EXTINGUISHING MEDIA TO AVOID

No information currently available.

5.4 SPECIAL 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.

5.5 SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Use self-contained breathing apparatus and protective clothing.

5.6 UNUSUAL FIRE AND EXPLOSION HAZARDS

During a fire, oxides of nitrogen may be produced.

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT B
MSDS#: 2159

Effective Date: 08/01/2000
Page 5 of 14

5.7 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).

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.

FOR INDUSTRY USE ONLY.

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

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT B
MSDS#: 2159

Effective Date: 08/01/2000
Page 6 of 14

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 quenchants. 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

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 UCC.

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: Rubber or plastic.

Other Protective Equipment: Eye Bath, Safety Shower

8.3 ENGINEERING CONTROLS

|| Use good housekeeping and acceptable industrial engineering practices.

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT B
MSDS#: 2159

Effective Date: 08/01/2000
Page 7 of 14

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Appearance: Straw-colored

pH: *Not currently available.*

Solubility in Water (by weight): 100 %

Odor: Characteristic

Boiling Point (760 mmHg): > 100 °C > 212 °F

Freezing Point: 0 °C 32 °F

Specific Gravity (H₂O = 1): 1.076 20 °C / 20 °C

Vapor Pressure at 20°C: ~ 2.3 kPa ~ 17 mmHg

Vapor Density (air = 1): Volatile portion < 1

Evaporation Rate (Butyl Acetate = 1): Volatile portion ~ 1

Melting Point: *Not applicable (for liquids)*

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 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.

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT B
MSDS#: 2159

Effective Date: 08/01/2000
Page 8 of 14

10.2 HAZARDOUS POLYMERIZATION Will Not Occur.

10.3 INHIBITORS/STABILIZERS Not applicable.

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

BOD (% Oxygen consumption)

	Day 5	Day 10	Day 15	Day 20	Day 30
	1 %	17 %		20 %	

12.2 ECOTOXICITY

Toxicity to Micro-organisms

Bacterial/NA; 16 h; IC50

Result value: > 1000 mg/l

Toxicity to Aquatic Invertebrates

Daphnia; 48 h; LC50

Result value: 5701 (4693 - 6926) mg/l

12.3 FURTHER INFORMATION

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT B
MSDS#: 2159

Effective Date: 08/01/2000
Page 9 of 14

|| Chemical Oxygen Demand (COD) - calculated: 0.77 mg/mg

13. DISPOSAL CONSIDERATIONS

13.1 WASTE DISPOSAL METHOD

Incinerate in a furnace or otherwise dispose of in accordance with applicable Federal, State and local requirements. Dispose in accordance with all applicable Federal, State, and local environmental regulations. Empty containers should be recycled or disposed of through an approved waste management facility.

13.2 DISPOSAL CONSIDERATIONS

See Section 13.1

Disposal methods identified are for the product as sold. For proper disposal of used material, an assessment must be completed to determine the proper and permissible waste management options permissible under applicable rules, regulations and/or laws governing your location.

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

ID Number : UN3082

Hazard Class : 9

Packing Group : PG III

Reportable Quantity : 4,762 LB

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT B
MSDS#: 2159

Effective Date: 08/01/2000
Page 10 of 14

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

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 SECTION 103 (CERCLA)

The following components of this product are specifically listed as hazardous substances in 40 CFR 302.4 (unlisted hazardous substances are not identified) and are present at levels which could require reporting:

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

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EPCRA) SECTIONS 302 AND 304

The following components of this product are listed as extremely hazardous substances in 40 CFR Part 355 and are present at levels which could require reporting and emergency planning:

None.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EPCRA) SECTION 313

The following components of this product are listed as toxic chemicals in 40 CFR 372.65 and are present at levels which could require reporting and customer notification under Section 313 and 40 CFR Part 372:

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

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EPCRA) SECTIONS 311 AND 312

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT B
MSDS#: 2159

Effective Date: 08/01/2000
Page 11 of 14

Delayed Hazard : No
Fire Hazard : No
Immediate Health Hazard : No
Reactive Hazard : No
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.

EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES (EINECS)

All components in this product are in compliance with EINECS.

CEPA - DOMESTIC SUBSTANCES LIST (DSL)

The components of this product are on the DSL or are exempt from reporting under the New Substances Notification Regulations.

15.2 STATE/LOCAL

PENNSYLVANIA (WORKER AND COMMUNITY RIGHT-TO-KNOW ACT)

This product is subject to the Worker and Community Right-to-Know Act. The following components of this product are at levels which could require identification in the MSDS:

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

MASSACHUSETTS (HAZARDOUS SUBSTANCES DISCLOSURE BY EMPLOYERS)

The following components of this product appear on the Massachusetts Substance List and are present at levels which could require identification in the MSDS:

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

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT B
MSDS#: 2159

Effective Date: 08/01/2000
Page 12 of 14

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

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.

NEW YORK (HAZARDOUS SUBSTANCES BULK STORAGE ACT)

New York State Bulk Storage Regulations (6 NYCRR Parts 595-599) This product is covered by 6 NYCRR for bulk storage and release reporting and response. Technical guidance and recommended practices are as follows: **NAME AND PHYSICAL/CHEMICAL CHARACTERISTICS** - See Sections 1, 2, 3, 5, & 9. **MATERIALS OF CONSTRUCTION** - Suitable materials of construction: Steel or stainless steel. Materials not to be used: Aluminum, copper and copper alloys. **CONDITIONS FOR STORAGE** - Storage at room temperature recommended. Product freezes at ~32 F and becomes highly viscous at temperatures above freezing. **STORAGE SYSTEM DESIGN** - Design should comply with applicable industry, Federal, and local codes with regards to mechanical, electrical, safety and health components. Should also comply with the current versions of the applicable reference documents cited in NYS/DEC Chemical Bulk Storage Regulations Sections 598.3 to 598.6 (for existing tanks) or Sections 599.2 and 599.7 (for new or substantially modified tanks). **INSPECTION AND MAINTENANCE** - A testing/inspection program which ensures structural integrity and proper system operation should be established. Inspection and maintenance procedures and testing of equipment should comply with NYS/DEC Regulations Sections 598.7 to 598.10. **TRANSFER AND UNLOADING** - These operations should comply with NYS/DEC Regulations Sections 598.5. **SPILL EMERGENCY RESPONSE PROCEDURES** - These operations should comply with NYS/DEC Regulations Section 599.17. See SECTION 6. See also other sections of this MSDS.

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

VOC: Not determined.

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

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT B
MSDS#: 2159

Effective Date: 08/01/2000
Page 13 of 14

16.1 AVAILABLE LITERATURE AND BROCHURES

ADDITIONAL INFORMATION: Additional product safety information on this product may be obtained by calling your Union Carbide Corporation Sales or Customer Service contact.

Ask for the brochure:

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

16.2 SPECIFIC HAZARD RATING SYSTEM

HMIS ratings for this product are: H - 2 F - 0 R - 0

These ratings are part of specific hazard communications program(s) and should be disregarded where individuals are not trained in the use of these hazard rating systems. You should be familiar with the hazard communication applicable to your workplace.

16.3 RECOMMENDED USES AND RESTRICTIONS

FOR INDUSTRY USE ONLY

16.4 REVISION

Version: 3.0

Revision: 08/01/2000

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

16.5 LEGEND

A	Asphyxiant
Bacterial/NA	Non Acclimated Bacteria
F	Fire
H	Health
HMIS	Hazardous Materials Information System
N/A	Not available
NFPA	National Fire Protection Association
O	Oxidizer
P	Peroxide Former
R	Reactivity

MATERIAL SAFETY DATA SHEET

Product Name: UCON(TM) QUENCHANT B
MSDS#: 2159

Effective Date: 08/01/2000
Page 14 of 14

TS	Trade Secret
VOL/VOL	Volume/Volume
W	Water Reactive
W/W	Weight/Weight

The opinions expressed herein are those of qualified experts within Union Carbide. We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the conditions of the use of the product are not under the control of Union Carbide, it is the user's obligation to determine conditions of safe use of the product.