



Material Safety Data Sheet

The Dow Chemical Company

Product Name: UCON(TM) QUENCHANT E

Issue Date: 11/18/2008

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The Dow Chemical Company 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) QUENCHANT E

COMPANY IDENTIFICATION

The Dow Chemical Company
2030 Willard H. Dow Center
Midland, MI 48674
USA

Customer Information Number: 800-258-2436

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 989-636-4400

Local Emergency Contact: 989-636-4400

2. Hazards Identification

Emergency Overview

Color: Yellow

Physical State: Liquid

Odor: Mild

Hazards of product:

CAUTION! May be harmful if swallowed.

Potential Health Effects

Eye Contact: May cause slight temporary eye irritation.

Skin Contact: Prolonged contact is essentially nonirritating to skin.

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

Inhalation: At room temperature, exposure to vapor is minimal due to low volatility; single exposure is not likely to be hazardous.

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: The data presented are for the following material: Sodium nitrite. May cause methemoglobinemia, thereby impairing the blood's ability to transport oxygen. In humans, symptoms may include: May cause central nervous system depression. May cause dizziness and drowsiness. Headache. Incoordination. Effects have been reported on the following organs: Heart. Liver. Spleen. Gastrointestinal tract. Testes. Observations in animals include: Low blood pressure.

Cancer Information: Sodium nitrite has produced tumors in laboratory animals only at high doses; low dietary doses did not cause cancer in laboratory animals. It has caused tumors in animals when given in combination with secondary amines or disulfiram (for treatment of alcoholism). Persons on disulfiram (ANTABUSE) therapy with possible exposure to nitrites should seek medical advice.

Birth Defects/Developmental Effects: The data presented are for the following material: Sodium nitrite. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

3. Composition Information

Component	CAS #	Amount
Water	7732-18-5	> 55.0 - < 65.0 %
Polyalkylene glycol	Trade secret	> 35.0 - < 45.0 %
Sodium nitrite	7632-00-0	> 1.0 - < 3.0 %

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: Wash skin with plenty of water.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

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

Notes to Physician: Maintain adequate ventilation and oxygenation of the patient. Administer 100% oxygen to relieve headache and a general sense of weakness. Determine methemoglobin concentration of blood every 3 to 6 hours for first 24 hours. It should return to normal within 24 hours. The treatment of toxic methemoglobinemia may include the intravenous administration of methylene blue. If methemoglobin >10-20% consider methylene blue 1-2 mg/kg body weight as 1% solution intravenously over 5 minutes followed by 15-30 cc flush (Price D, Methemoglobinemia, Goldfrank Toxicologic Emergencies, 5th ed., 1994). Also provide 100% oxygen. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Medical Conditions Aggravated by Exposure: Methemoglobinemia may aggravate any preexisting condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease or anemia.

5. Fire Fighting Measures

Extinguishing Media: To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.

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. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.

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). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Unusual Fire and Explosion Hazards: This material will not burn until the water has evaporated. Residue can burn. If exposed to fire from another source and water is evaporated, exposure to high temperatures may cause toxic fumes.

Hazardous Combustion Products: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide. Combustion products may include trace amounts of: Nitrogen oxides.

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: Do not swallow. Wash thoroughly after handling. Do not use secondary or tertiary amines 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

None established

Personal Protection

Eye/Face Protection: Use safety glasses.

Skin Protection: No precautions other than clean body-covering clothing should be needed.

Hand protection: Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.

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 handling at elevated temperatures without sufficient ventilation, use an approved air-purifying respirator. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply. 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: Steam and trace amounts of organic vapors can evolve during the quenching process. If allowed to accumulate, the vapors can be toxic and irritating to the eyes, nose and throat. Adequate workplace ventilation must be provided to control the accumulation of vapors and worker exposure. This may require the use of a special, local ventilation in the immediate area where vapors are released.

9. Physical and Chemical Properties

Physical State	Liquid
Color	Yellow
Odor	Mild
Odor Threshold	No test data available
Flash Point - Closed Cup	ASTM D93 None
Flash Point - Open Cup	ASTM D92 None
Flammability (solid, gas)	No
Flammable Limits in Air	Lower: No test data available Upper: No test data available
Autoignition Temperature	No test data available
Vapor Pressure	17 mmHg @ 20 °C ASTM E1719
Boiling Point (760 mmHg)	> 100 °C (> 212 °F) <i>Calculated</i> .
Vapor Density (air = 1)	<1 <i>Calculated</i> Volatile portion
Specific Gravity (H ₂ O = 1)	1.073 20 °C/20 °C <i>Calculated</i>
Liquid Density	0.9986 g/ml @ 20 °C <i>Calculated</i>
Freezing Point	See Pour Point
Melting Point	Not applicable to liquids
Solubility in Water (by weight)	100 % @ 20 °C <i>Visual</i>
pH	9.0 - 11.0 ASTM E70
Decomposition Temperature	No test data available
Partition coefficient, n-octanol/water (log Pow)	No data available for this product.
Evaporation Rate (Butyl Acetate = 1)	No test data available
Dynamic Viscosity	No test data available
Kinematic Viscosity	242 - 297 cSt @ 37.8 °C ASTM D445
Pour point	0 °C (32 °F) ASTM D97
Volatile Organic Compounds	0 g/l EPA Method No. 24

10. Stability and Reactivity

Stability/Instability

Thermally stable at typical use temperatures.

Conditions to Avoid: Some components of this product can decompose at elevated temperatures. 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.

For the major component(s): LD50, Rat > 16,000 mg/kg

For the minor component(s): LD50, Rat 85 - 180 mg/kg

Skin Absorption

For the major component(s): LD50, Rabbit > 16,000 mg/kg

Repeated Dose Toxicity

The data presented are for the following material: Sodium nitrite. May cause methemoglobinemia, thereby impairing the blood's ability to transport oxygen. In humans, symptoms may include: May cause central nervous system depression. May cause dizziness and drowsiness. Headache. Incoordination. Effects have been reported on the following organs: Heart. Liver. Spleen. Gastrointestinal tract. Testes. Observations in animals include: Low blood pressure.

Chronic Toxicity and Carcinogenicity

Sodium nitrite has produced tumors in laboratory animals only at high doses; low dietary doses did not cause cancer in laboratory animals. It has caused tumors in animals when given in combination with secondary amines or disulfiram (for treatment of alcoholism). Persons on disulfiram (ANTABUSE) therapy with possible exposure to nitrites should seek medical advice.

Developmental Toxicity

The data presented are for the following material: Sodium nitrite. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Genetic Toxicology

The data presented are for the following material: Sodium nitrite. In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative.

12. Ecological Information

ENVIRONMENTAL FATE

Movement & Partitioning

No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).

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
7 %	10 %	31 %	

Chemical Oxygen Demand: 0.75 mg/mg

ECOTOXICITY

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

LC50, fathead minnow (*Pimephales promelas*), 96 h: > 5,000 mg/l

Aquatic Invertebrate Acute Toxicity

LC50, water flea *Daphnia magna*, 48 h: 9,500 mg/l

Toxicity to Micro-organisms

IC50; bacteria, 16 h: > 5,000 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.

14. Transport Information

DOT Non-Bulk
NOT REGULATED

DOT Bulk

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S

Technical Name: CONTAINS SODIUM NITRITE

Hazard Class: 9 **ID Number:** UN3082 **Packing Group:** PG III

IMDG

NOT REGULATED

ICAO/IATA

NOT REGULATED

Additional Information

Reportable quantity: 3,333 lb – SODIUM NITRITE

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

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard

No

Delayed (Chronic) Health Hazard	No
Fire Hazard	No
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

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 of 1986 and which are listed in 40 CFR 372.

Component	CAS #	Amount
Sodium nitrite	7632-00-0	> 1.0 - < 3.0 %

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	> 1.0 - < 3.0 %

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.

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A)

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)

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.

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)

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

16. Other Information

Other Information

This product is FM Approved or Specification Tested. Any further blending or handling (re-packaging and/or re-labeling) by the purchaser of this material requires an additional agreement with FM Approvals (formerly Factory Mutual Research). Contact Dow for further information.

Hazard Rating System

NFPA	Health	Fire	Reactivity
	1	0	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
Action Level	A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded.

The Dow Chemical Company 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.