



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



Product Name: UCON(TM) HYDROLUBE HP-5046
MSDS#: 1210

Effective Date: 10/27/2000
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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) HYDROLUBE HP-5046
Chemical Name	Not applicable (mixture)
Chemical Family	Glycols
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.

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MATERIAL SAFETY DATA SHEET**Product Name:** UCON(TM) HYDROLUBE HP-5046
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Page 2 of 15**2. COMPOSITION INFORMATION**

Component	CAS #	Amount (%W/W)
Diethylene glycol	111-46-6	< 55%
Water	7732-18-5	< 40%
Polyalkylene glycol	Trade secret	< 15%
Carboxylic Acid	Trade secret	< 3%
Additives	Not available	< 3%

3. HAZARDS IDENTIFICATION**3.1 EMERGENCY OVERVIEW****Appearance** Pale yellow**Physical State** Liquid**Odor** Mild musty

Hazards of product DANGER! HARMFUL OR FATAL IF SWALLOWED.
CAUSES EYE IRRITATION.
VAPOR, AEROSOL OR MIST OF THE PRODUCT AND THERMAL DEGRADATION PRODUCTS GENERATED AT HIGH TEMPERATURE CAN BE IRRITATING AND HARMFUL IF INHALED.

MAY CAUSE LIVER AND KIDNEY DAMAGE.
VAPOR MAY CAUSE TEMPORARY BLURRING OF VISION.

3.2 POTENTIAL HEALTH EFFECTS**Effects of Single Acute Overexposure**

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Inhalation Short-term harmful health effects are not expected from vapor generated at ambient temperature. Vapor or mist from heated material may cause nausea and headache.

Eye Contact May cause irritation, experienced as stinging with excess blinking and tear production. Excess redness and swelling of the conjunctiva may occur. Vapor may cause temporary disturbance of vision. (See "Notes to Physician".)

Skin Contact Brief contact is not irritating. Prolonged contact may cause reddening, itchiness, a burning sensation, and possible drying and flaking of the skin.

Skin Absorption No evidence of harmful effects from available information.

Swallowing Moderately high toxicity. May cause pain or discomfort in the abdomen, pain in the lumbar region, nausea, vomiting, diarrhea, dizziness, drowsiness, decreased urine production, malaise, and loss of consciousness. Severe kidney damage may occur which can be fatal if not promptly and adequately treated. Liver injury may also occur.

Chronic, Prolonged or Repeated Overexposure

Effects of Repeated Overexposure Repeated overexposure to vapor or mist may cause headache, nausea, and dizziness.

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. Skin contact may cause sensitization and an allergic skin reaction. Short-term repeated ingestion of diethylene glycol may produce renal failure.

Medical Conditions Aggravated by Exposure

A knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure is unlikely to aggravate existing medical conditions.

3.3 POTENTIAL ENVIRONMENTAL EFFECTS

See Section 12 for Ecological Information.

4. FIRST AID PROCEDURES**4.1 INHALATION**

Remove to fresh air.

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4.2 EYE CONTACT

Immediately flush eyes with water and continue washing for several minutes. Remove contact lenses, if worn. Obtain medical attention

4.3 SKIN CONTACT

Wash skin with soap and water.

4.4 SWALLOWING

Obtain medical attention immediately. If patient is fully conscious, give two glasses of water. Do not induce vomiting. If medical advice is delayed, and if the person has swallowed a moderate volume of material (a few ounces), then give three to four ounces of hard liquor, such as whiskey. For children, give proportionally less liquor, according to weight.

4.5 NOTES TO PHYSICIAN

It is estimated that the lethal oral dose to adults is of the order of 1.0-1.2 ml/kg. Diethylene glycol produces metabolites that cause an elevated anion-gap metabolic acidosis and renal tubular injury. Liver injury may occur, but not as severe as kidney injury. The signs and symptoms in diethylene glycol poisoning are those of metabolic acidosis, CNS depression, and kidney injury. Urinalysis may show albuminuria, hematuria, and oxaluria. The currently recommended medical management of diethylene glycol poisoning includes elimination of diethylene glycol and its metabolites, correction of metabolic acidosis, and prevention of kidney injury. It is essential to have immediate and follow-up urinalysis and clinical chemistry. There should be particular emphasis on acid-base balance, and liver and kidney function tests. A continuous infusion of 5% sodium bicarbonate with frequent monitoring of electrolytes and fluid balance status is used to achieve correction of metabolic acidosis and forced diuresis. For severe and/or deteriorating cases, hemodialysis may be required. Dialysis should be considered for patients who are symptomatic, have severe metabolic acidosis, a blood diethylene glycol concentration greater than 25 mg/dl, or compromise of renal function. There are no reported cases in which ethanol has been used antidotally, although a limited number of laboratory animal studies suggest that it may be effective. If used clinically, a therapeutically effective blood concentration is probably around 100-150 mg/dl, although this is unproven; this concentration should be achieved by a rapid loading dose and maintained by intravenous infusion. One animal study has suggested that pyrazole may be an effective early antidote, but its value in human diethylene glycol poisoning is unproven.

Exposure to the vapor may cause minor transient edema of the corneal epithelium. This condition, referred to as "glauropsia", "blue haze" or "blue-gray haze", produces a blurring of vision against a general bluish haze and the appearance of halos around bright objects. The effect disappears spontaneously within a few hours of the end of an exposure and leaves no sequelae. Although not detrimental to the eye per se, glauropsia predisposes an affected individual to physical accidents and reduces the ability to undertake skilled tasks, such as driving a motorized vehicle.

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5. FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Flash Point - Closed Cup: *Pensky-Martens Closed Cup ASTM D 93* None.

Flash Point - Open Cup: *Cleveland Open Cup ASTM D 92* None.

Autoignition Temperature: *Not applicable.*

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.

5.7 HAZARDOUS COMBUSTION PRODUCTS

Combustion may produce the following products: Oxides of carbon and nitrogen. See Section 3.2 - Other Effects of Overexposure. 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.

6. ACCIDENTAL RELEASE MEASURES

Steps to be Taken if Material is Released or Spilled:

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

Personal Precautions: Wear suitable protective equipment, especially eye protection. See Section 8.2 - Personal Protection.

7. HANDLING AND STORAGE

7.1 HANDLING

General Handling

Do not swallow.

Avoid contact with eyes.

Avoid breathing vapor, aerosol and mist.

Keep container closed.

Use with adequate ventilation.

Wash thoroughly after handling.

FOR INDUSTRY USE ONLY.

Ventilation

General (mechanical) room ventilation is satisfactory for use at low temperatures. If used at high temperatures, special local ventilation is recommended at points where vapors can be expected to escape to the workplace air.

Other Precautions

Do not add nitrites or other nitrosating agents. A nitrosamine, which may cause cancer, may be formed.

7.2 STORAGE

Store in accordance with good industrial practices. Storage information may be obtained from product-specific Union Carbide Storage and Handling Guides, or by calling a Union Carbide Customer Service Representative.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 EXPOSURE LIMITS

Component	Exposure Limits	Skin	Form
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Diethylene glycol

50 ppm TWA8 AIHA WEEL
10 mg/m3 TWA8 AIHA WEELAerosol and Vapor
Aerosol

In the Exposure Limits Chart above, if there is no specific qualifier (i.e., Aerosol) listed in the Form Column for a particular limit, the listed limit includes all airborne forms of the substance that can be inhaled.

A "Yes" in the Skin Column indicates a potential significant contribution to overall exposure by the cutaneous (skin) route, including mucous membranes and the eyes, either by contact with vapors or by direct skin contact with the substance. A "Blank" in the Skin Column indicates that exposure by the cutaneous (skin) route is not a potential significant contributor to overall exposure.

8.2 PERSONAL PROTECTION**Respiratory Protection:**

If high vapor concentrations exist, wear NIOSH-approved breathing air equipment or NIOSH-approved face mask with organic vapor cartridge and dust or mist pre-filter (not for use in fire fighting or in atmospheres with reduced oxygen content).

Ventilation:

General (mechanical) room ventilation is satisfactory for use at low temperatures. If used at high temperatures, special local ventilation is recommended at points where vapors can be expected to escape to the workplace air.

Eye Protection:

Monogoggles

Protective Gloves:

Polyvinyl chloride coated

Other Protective Equipment:

Eye Bath, Safety Shower

8.3 ENGINEERING CONTROLS

Use good housekeeping and acceptable industrial engineering practices.

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Page 8 of 15**9. PHYSICAL AND CHEMICAL PROPERTIES****Physical State:** Liquid**Appearance:** Pale yellow**pH:** *Not currently available.***Solubility in Water (by weight):** 20 °C 100 %**Odor:** Mild musty**Boiling Point (760 mmHg):** 106.4 °C 223.5 °F**Freezing Point:** *Pour point* -63 °C -81 °F**Specific Gravity (H₂O = 1):** 1.090 20 °C / 20 °C**Vapor Pressure at 20°C:** 1.9 kPa 14 mmHg**Vapor Density (air = 1):** 1.2**Evaporation Rate (Butyl Acetate = 1):** 0.9**Melting Point:** *Not applicable.***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.**10.2 HAZARDOUS POLYMERIZATION** Will Not Occur.

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Page 9 of 15**10.3 INHIBITORS/STABILIZERS** Not applicable.**11. TOXICOLOGICAL INFORMATION****SIGNIFICANT DATA WITH POSSIBLE RELEVANCE TO HUMANS**

A chronic dietary feeding study of diethylene glycol with rats showed mild kidney injury at 1%, while concentrations of 2% and 4% caused more marked kidney injury. In addition, at 2% and 4% of diethylene glycol in the diet, some rats developed benign papillary tumors in the urinary bladder. These have been attributed to the presence of urinary bladder calcium oxalate stones. No evidence for carcinogenicity was found with a chronic skin-painting study with diethylene glycol in mice. The absence of a direct chemical carcinogenic effect accords with the results in in vitro genotoxicity studies which show that it does not produce mutagenic or clastogenic effects. A feeding study employing up to 5.0% diethylene glycol in the diet failed to produce any teratogenic effects. In a mouse continuous breeding study with large doses of diethylene glycol in drinking water, there was evidence for reproductive toxicity at 3.5% (equivalent to 6.1 g/kg/day) as reduced number of litters, live pups per litter, and live pup weight. No such effects were seen at 1.75% (approximately 3.05 g/kg/day). The relevance of these very high dosages to human health is uncertain. Pregnant rats receiving undiluted diethylene glycol by gavage over the period of organogenesis had toxic effects at 4.0 and 8.0 ml/kg/day as mortality, decreased body weight, decreased food consumption, increased water consumption, and increased liver and kidney weights. Fetotoxicity was seen only at these maternally toxic dosages. Decreased fetal body weight occurred at 8.0 ml/kg/day, and increased skeletal variants at 4.0 and 8.0 ml/kg/day. No embryotoxic or teratogenic effects were seen. Neither maternal toxicity nor fetotoxicity occurred at 1.0 ml/kg/day. In a study with mice also receiving undiluted diethylene glycol over the period of organogenesis, maternal toxicity occurred at 2.5 and 10.0 ml/kg/day, but not at 0.5 ml/kg/day. Definitive developmental toxicity was not seen in this species. An acute nose-only exposure (4-hr) to a respirable aerosol (2.83-2.52 microns) of diethylene glycol at a mean concentration of 5.08 mg/l produced no signs of toxicity or irritancy. Contains one or more amines which may react with nitrites or other nitrosating agents to form nitrosamines. Some nitrosamines have been shown to be carcinogenic in laboratory animals. A component of this material has been reported to cause embryofetal toxicity in laboratory animals.

The relevance of these findings to humans is unknown.

12. ECOLOGICAL INFORMATION**12.1 ENVIRONMENTAL FATE****BOD (% Oxygen consumption)**

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	Day 5	Day 10	Day 15	Day 20	Day 30
	13 %	26 %		45 %	

STURM (% Carbon dioxide evolved)

	Day 5	Day 10	Day 15	Day 28
				64.4 %

12.2 ECOTOXICITY**Toxicity to Micro-organisms**

Bacteria/NA; 16 h; IC50

Result value: 22000 mg/l

Toxicity to Micro-organisms

Bacteria/NA; 16 h; NOEC

Result value: 2500 mg/l

Toxicity to Micro-organisms

Bacteria/NA; 16 h; IC50

Result value: > 5000 mg/l

Toxicity to Aquatic Invertebrates

Daphnia; 48 h; NOEC

Result value: 310 mg/l

Toxicity to Aquatic Invertebrates

Daphnia; 48 h; LC50

Result value: > 5000 mg/l

Toxicity to Aquatic Invertebrates

Daphnia; 48 h; EC50

Result value: 4800 (4300 - 5500) mg/l

Toxicity to Fish

Fathead Minnow; 96 h; NOEC

Result value: 2100 mg/l

Toxicity to Fish

Fathead Minnow; 96 h; LC50

Result value: 4500 mg/l

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Page 11 of 15**12.3 FURTHER INFORMATION**

Chemical Oxygen Demand (COD) - calculated: 1.00 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 :** NOT REGULATED

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.

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Page 12 of 15**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
Ethylene glycol	107-21-1	<= 0.9000%
1,4-Dioxane	123-91-1	<= 0.5000PPM
Ethylene oxide	75-21-8	<= 0.1000PPM
Propylene oxide	75-56-9	<= 0.1000PPM

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:

- This product does not contain toxic chemicals at levels which require reporting under the statute.

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

Delayed Hazard : Yes

Fire Hazard : No

Immediate Health Hazard : Yes

Reactive Hazard : No

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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
Diethylene glycol	111-46-6	< 55.0000%

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:
None.

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

This product contains the following chemical(s) known to the State of California to cause cancer:

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Component	CAS #	Amount
1,4-Dioxane	123-91-1	<= 0.5000PPM
Propylene oxide	75-56-9	<= 0.1000PPM

CALIFORNIA PROPOSITION 65 (SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1988)

This product contains the following chemical(s) known to the State of California to cause cancer and birth defects or other reproductive harm.

Component	CAS #	Amount
Ethylene oxide	75-21-8	<= 0.1000PPM

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)
551 g/l VOC
904 g/l of material less water and less exempted solvents.

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 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 - 1 R - 0

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NFPA ratings for this product are: H - 2 F - 1 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: 5.

Revision: 10/27/2000

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
TS	Trade Secret
VOL/VOL	Volume/Volume
W	Water Reactive
WW	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.