



SAFETY DATA SHEET

THE DOW CHEMICAL COMPANY

Product name: UCON™ LUBRICANT 50-HB-55, INH.

Issue Date: 04/14/2015

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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. IDENTIFICATION

Product name: UCON™ LUBRICANT 50-HB-55, INH.

Recommended use of the chemical and restrictions on use

Identified uses: 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.

COMPANY IDENTIFICATION

THE DOW CHEMICAL COMPANY
2030 WILLARD H DOW CENTER
MIDLAND MI 48674-0000
UNITED STATES

Customer Information Number:

800-258-2436

SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 800-424-9300

Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification

This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Eye irritation - Category 2A

Label elements

Hazard pictograms



Signal word: **WARNING!**

Hazards

Causes serious eye irritation.

Precautionary statements**Prevention**

Wash skin thoroughly after handling.

Wear eye protection/ face protection.

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/ attention.

Other hazards

no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Polyalkylene glycol monobutyl ether

This product is a substance.

| Component | CASRN | Concentration |
|-------------------------------------|--------------|----------------------|
| Polyalkylene glycol monobutyl ether | 9038-95-3 | > 98.5 % |
| Butanol | 71-36-3 | < 0.7 % |
| Diethylene glycol monobutyl ether | 112-34-5 | < 0.2 % |
| Ethylene glycol monobutyl ether | 111-76-2 | < 0.2 % |
| Triethylene glycol monobutyl ether | 143-22-6 | < 0.2 % |
| Methyl ether of Hydroquinone | 150-76-5 | < 0.02 % |

4. FIRST AID MEASURES

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

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

Skin contact: Wash off with plenty of water.

Eye contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

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. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture

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.

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.

Advice for firefighters

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Keep personnel out of low areas. 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.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Avoid contact with eyes. Wash thoroughly after handling. 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.

Conditions for safe 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 sales or customer service contact.

Storage stability

**Shelf life: Use within
24 Month**

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

| Component | Regulation | Type of listing | Value/Notation |
|-----------------------------------|------------|----------------------------------|-------------------------------|
| Butanol | ACGIH | TWA | 20 ppm |
| | OSHA Z-1 | TWA | 300 mg/m ³ 100 ppm |
| Diethylene glycol monobutyl ether | Dow IHG | TWA | 35 ppm |
| | ACGIH | TWA Inhalable fraction and vapor | 10 ppm |
| Ethylene glycol monobutyl ether | ACGIH | TWA | 20 ppm |
| | OSHA Z-1 | TWA | 240 mg/m ³ 50 ppm |
| | ACGIH | TWA | BEI |

| | | | |
|------------------------------|-------------------|------------|------------------------------|
| Methyl ether of Hydroquinone | OSHA Z-1 ACGIH | TWA TWA | Absorbed via skin 5 mg/m3 |
|------------------------------|-------------------|------------|------------------------------|

Exposure controls

Engineering controls: 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.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

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.

Other protection: No precautions other than clean body-covering clothing should be needed.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

| | |
|---|--|
| Physical state | Liquid. |
| Color | Colorless to yellow |
| Odor | Mild |
| Odor Threshold | No test data available |
| pH | 5.5 - 7.5 <i>ASTME70</i> (10% dilution in water) |
| Melting point/range | No test data available |
| Freezing point | See Pour Point |
| Boiling point (760 mmHg) | > 200 °C (> 392 °F) Calculated. |
| Flash point | closed cup 101 °C (214 °F) <i>ASTM D 93</i> |
| Evaporation Rate (Butyl Acetate = 1) | No test data available |
| Flammability (solid, gas) | Not applicable to liquids |
| Lower explosion limit | No test data available |
| Upper explosion limit | No test data available |
| Vapor Pressure | < 0.01 mmHg at 20 °C (68 °F) <i>ASTME1719</i> |
| Relative Vapor Density (air = 1) | 9 <i>Calculated.</i> |

| | |
|---|---|
| Relative Density (water = 1) | 0.978 at 20 °C (68 °F) / 20 °C <i>Calculated.</i> |
| Water solubility | 100 % <i>Visual</i> |
| Partition coefficient: n-octanol/water | no data available |
| Auto-ignition temperature | No test data available |
| Decomposition temperature | No test data available |
| Kinematic Viscosity | 6.9 - 9.6 cSt at 40 °C (104 °F) <i>ASTM D 445</i> |
| Explosive properties | no data available |
| Oxidizing properties | no data available |
| Molecular weight | 270 g/mol <i>Calculated.</i> |
| Molecular formula | Not available |
| pour point | < -60 °C (< -76 °F) <i>ASTM D97</i> |
| Volatile Organic Compounds | 12 g/L <i>EPA Method No. 24</i> |

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: no data available

Chemical stability: Thermally stable at recommended temperatures and pressures.

Possibility of hazardous reactions: Polymerization will not occur.

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 decomposition products: 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

Toxicological information on this product or its components appear in this section when such data is available.

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

LD50, Rat, 8,530 mg/kg

Acute dermal toxicity

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

LD50, Rabbit, 20,000 mg/kg

Acute inhalation toxicity

At room temperature, exposure to vapor is minimal due to low volatility; single exposure is not likely to be hazardous. For respiratory irritation and narcotic effects: No relevant data found.

Skin corrosion/irritation

Essentially nonirritating to skin.

Serious eye damage/eye irritation

May cause moderate eye irritation which may be slow to heal.

May cause slight corneal injury.

Sensitization

For the minor component(s):

Did not cause allergic skin reactions when tested in humans.

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

In animals, effects have been reported on the following organs after dermal exposure:

Kidney.

Carcinogenicity

No relevant data found.

Teratogenicity

No relevant data found.

Reproductive toxicity

No relevant data found.

Mutagenicity

No relevant data found.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

COMPONENTS INFLUENCING TOXICOLOGY:

Polyalkylene glycol monobutyl ether

Acute inhalation toxicity

At room temperature, exposure to vapor is minimal due to low volatility; single exposure is not likely to be hazardous. For respiratory irritation and narcotic effects: No relevant data found.

Rat, 8 Hour, vapour, No deaths occurred following exposure to a saturated atmosphere.

Butanol

Acute inhalation toxicity

LC50, Rat, male and female, 4 Hour, vapour, > 17.76 mg/l OECD Test Guideline 403 No deaths occurred at this concentration.

Diethylene glycol monobutyl ether

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to vapor. For respiratory irritation and narcotic effects: No relevant data found.

As product: The LC50 has not been determined.

Ethylene glycol monobutyl ether

Acute inhalation toxicity

In animals, effects have been reported on the following organs: blood (hemolysis) and secondary effects on the kidney and liver. Human red blood cells have been shown to be significantly less sensitive to hemolysis than those of rodents and rabbits. LC0, Guinea pig, 1 Hour, vapour, > 3.1 mg/l No deaths occurred at this concentration.

Triethylene glycol monobutyl ether

Acute inhalation toxicity

As product: The LC50 has not been determined.

Methyl ether of Hydroquinone

Acute inhalation toxicity

The LC50 has not been determined.

Carcinogenicity

Component

Ethylene glycol monobutyl ether

List

ACGIH

Classification

A3: Confirmed animal carcinogen with unknown relevance to humans.

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

Toxicity

Acute toxicity to fish

No relevant information found.

Persistence and degradability

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

Theoretical Oxygen Demand: 2.15 mg/g

Biological oxygen demand (BOD)

| | |
|------------|-----|
| Incubation | BOD |
|------------|-----|

| Time | |
|------|------|
| 5 d | 8 % |
| 10 d | 14 % |
| 20 d | 17 % |

Bioaccumulative potential

Bioaccumulation: For this family of materials: No bioconcentration is expected because of the relatively high water solubility.

Mobility in soil**Polyalkylene glycol monobutyl ether**

No relevant data found.

Butanol

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient(Koc): 2.4 Estimated.

Diethylene glycol monobutyl ether

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient(Koc): 2 Estimated.

Ethylene glycol monobutyl ether

Potential for mobility in soil is high (Koc between 50 and 150).

Partition coefficient(Koc): 67 Estimated.

Triethylene glycol monobutyl ether

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient(Koc): 10 Estimated.

Methyl ether of Hydroquinone

Potential for mobility in soil is high (Koc between 50 and 150).

Partition coefficient(Koc): 55.7 Measured

13. DISPOSAL CONSIDERATIONS

Disposal methods: 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

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Not regulated for transport

**Transport in bulk
according to Annex I or II
of MARPOL 73/78 and the
IBC or IGC Code**

Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. 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

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) Sections 311 and 312

Acute Health Hazard

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Pennsylvania Worker and Community Right-To-Know Act:

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.

United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

:

16. OTHER INFORMATION**Hazard Rating System****NFPA**

| Health | Fire | Reactivity |
|--------|------|------------|
| 1 | 1 | 0 |

Revision

Identification Number: 101233092 / A001 / Issue Date: 04/14/2015 / Version: 7.0

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

Legend

| | |
|-------------------|--|
| Absorbed via skin | Absorbed via skin |
| ACGIH | USA. ACGIH Threshold Limit Values (TLV) |
| BEI | Biological Exposure Indices |
| Dow IHG | Dow Industrial Hygiene Guideline |
| OSHA Z-1 | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
| TWA | 8-hour, time-weighted average |

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

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.