

OPTIMAL GROUP OF COMPANIES

(466583 K, 466592 M, 466586 D)

An Affiliate of The Dow Chemical Company and Petroliam Nasional Berhad

CHEMICAL SAFETY DATA SHEET



O P T I M A L

Product Name: UCON™ COMPRESSOR LUBRICANT PE-320L Effective Date: 17 Feb. 2000

MSDS #: CLB33

Page 1 of 7

OPTIMAL CHEMICALS urges the recipient of the Chemical Safety Data Sheet to study it carefully to become aware of hazards, if any of the product involved. In the interest of safety you should (1) notify your employees, agents and contractors of the information on this sheet, (2) furnish a copy to each of your customers for the product, and (3) request your customer to inform their employees and customers as well.

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. IDENTIFICATION OF THE SUBSTANCE OR PREPARATION

| | |
|------------------|------------------------------|
| CHEMICAL NAME: | Not applicable (mixture) |
| CHEMICAL FAMILY: | Polyalkylene glycol |
| FORMULA: | Trade Secret |
| CAS # AND NAME: | See Section 2, "Ingredients" |
| SYNONYMS: | None |

1.2. COMPANY IDENTIFICATION

Headquarters:

OPTIMAL CHEMICALS (Malaysia) Sdn Bhd (466586 D)

A subsidiary of The Dow Chemical Company and Petroliam Nasional Berhad

Level 13, Tower I

Petronas Twin Towers

KLCC, 50088 Kuala Lumpur Malaysia

Plant site:

OPTIMAL CHEMICALS (MALAYSIA) SDN BHD (466586 D)

A subsidiary of The Dow Chemical Company and Petroliam Nasional Berhad

OPTIMAL Administration Complex

Kerteh Industrial Area

KM 106 Jalan Kuala Terengganu - Kuantan

24300 Kerteh, Kemaman

Terengganu Darul Iman.

1.3. EMERGENCY TELEPHONE NUMBER

24 hours a day: Malaysia 00-800-2537 8747

or call Bomba: 994

| | |
|--|------------------------------|
| Product Name: UCON™ COMPRESSOR LUBRICANT PE-320L | Effective Date: 17 Feb. 2000 |
| MSDS #: CLB33 | Page 2 of 7 |

2. COMPOSITION / INFORMATION ON INGREDIENTS

| Ingredient (CAS #) | Concentration % by weight | Hazard | Danger Symbol (s) |
|--|------------------------------|---------------|----------------------|
| Polyalkylene glycol (CAS # 9003-13-8) | >99 | See Section 3 | -- |
| Additive | <1 | See Section 3 | -- |

3. HAZARDS IDENTIFICATION

3.1. HEALTH HAZARD DATA

3.1.1. EFFECTS OF A SINGLE OVEREXPOSURE

Swallowing

No evidence of harmful effects from available information.

Skin absorption

No evidence of harmful effects from available information.

Inhalation

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

Skin contact

No evidence of harmful effects from available information.

Eye contact

Excess redness and swelling of the conjunctiva may occur.

3.1.2. EFFECTS OF REPEATED OVEREXPOSURE

No information currently available.

3.1.3. MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE

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.

3.1.4. OTHER EFFECTS OF OVEREXPOSURE

Overexposure to vapour, 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.

4. FIRST AID MEASURES

4.1. SWALLOWING

No emergency care anticipated.

4.2. INHALATION

Remove to fresh air.

| | |
|--|------------------------------|
| Product Name: UCON™ COMPRESSOR LUBRICANT PE-320L | Effective Date: 17 Feb. 2000 |
| MSDS #: CLB33 | Page 3 of 7 |

4.3. SKIN CONTACT

Wash skin with soap and water.

4.4. EYE CONTACT

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

4.5. NOTES TO PHYSICIAN

There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE-FIGHTING MEASURES

5.1. EXTINGUISHING MEDIA

Extinguish fires with water spray or apply alcohol-type or all-purpose type foam by manufacturer's recommended techniques for large fires. Use carbon dioxide or dry chemical media for small fires.

5.2. EXTINGUISHING MEDIA TO BE AVOIDED

None.

5.3. 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.

5.4. SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Use self-contained breathing apparatus and protective clothing.

5.5. UNUSUAL FIRE AND EXPLOSION HAZARDS

None known.

6. ACCIDENTAL RELEASE MEASURES

Steps to be taken if material is released or spilled

Wear suitable protective equipment, especially eye protection.

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

7. HANDLING AND STORAGE

7.1. HANDLING

General handling precautions

Avoid breathing vapour, aerosol and mist.

Avoid contact with eyes.

Use with adequate ventilation.

Wash thoroughly after handling.

Ventilation

| | |
|--|------------------------------|
| Product Name: UCON™ COMPRESSOR LUBRICANT PE-320L | Effective Date: 17 Feb. 2000 |
| MSDS #: CLB33 | Page 4 of 7 |

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

Other precautions

WARNING: Sudden release of hot organic chemical vapours or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into hot equipment under a vacuum, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions.

Any use of this product in elevated-temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions. Further information is available in a technical bulletin entitled "Ignition Hazards of Organic Chemical Vapours".

UCON Fluids and Lubricants (Family Brochure)

Ask about the availability of specific product and end-use bulletins.

7.2. STORAGE

Keep container closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. EXPOSURE LIMITS

No exposure limits have been established.

8.2. PERSONAL PROTECTION

Respiratory protection

None required for use at low temperatures.

Hand protection / protective gloves

PVC-coated

Eye protection

Monogoggles

Other protective equipment

Eye bath and safety shower.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--------------------------|---|
| PHYSICAL STATE | Liquid |
| COLOUR | Transparent pale yellow |
| ODOUR | Mild characteristic |
| MOLECULAR WEIGHT | Not applicable (mixture) |
| BOILING POINT | (Decomposes above) 300 °C at 1013 hPa |
| FREEZING POINT | (pour point) <0 °C |
| MELTING POINT | Not applicable |
| FLASH POINT | 163 °C METHOD: Pensky-Martens closed cup ASTM D 93 207 °C METHOD: Cleveland open cup ASTM D 92 |
| AUTOIGNITION TEMPERATURE | Not currently available |
| FLAMMABILITY LIMITS | LOWER: Not determined |
| IN AIR (% by volume) | UPPER: Not determined |

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|--|------------------------------|
| Product Name: UCON™ COMPRESSOR LUBRICANT PE-320L | Effective Date: 17 Feb. 2000 |
| MSDS #: CLB33 | Page 5 of 7 |

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|---|--------------------|
| SPECIFIC GRAVITY (H2O=1) | 1.079 at 20/20 °C |
| VAPOUR PRESSURE | <0.01 hPa at 20 °C |
| VAPOUR DENSITY (air=1) | >1 |
| EVAPORATION RATE (Butyl acetate = 1) | Nil |
| SOLUBILITY IN WATER (% by weight) | 100 at 20 °C |
| PERCENT VOLATILES | None specified |

10. STABILITY AND REACTIVITY

10.1. STABILITY

Stable.

Conditions to avoid

None.

Incompatible materials

Normally unreactive; however, avoid strong bases at high temperatures, strong acids, strong oxidizing agents and materials reactive with hydroxyl compounds.

Hazardous combustion products

Combustion may produce the following products:

Carbon monoxide and/or carbon dioxide.

See Section 3, "Other Effects of Overexposure

Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an asphyxiant.

10.2. POLYMERIZATION

Will not occur.

Conditions to avoid

None.

11. TOXICOLOGICAL INFORMATION,

11.1. ACUTE TOXICOLOGICAL INFORMATION

No information currently available.

11.2. OTHER TOXICOLOGICAL INFORMATION

When administered to rats by stomach tube, a component in this mixture produced tumors of the forestomach. On the basis of this information, an IARC working group concluded that there is "limited evidence" for the carcinogenicity of the component in laboratory animals. No case report or epidemiological study of carcinogenicity to humans was available to the working group, thus no evaluation could be made of the carcinogenicity to humans.

11.3. ADDITIONAL INFORMATION

No additional toxicity information currently available.

| | |
|--|------------------------------|
| Product Name: UCON™ COMPRESSOR LUBRICANT PE-320L | Effective Date: 17 Feb. 2000 |
| MSDS #: CLB33 | Page 6 of 7 |

12. ECOLOGICAL INFORMATION

12.1. PERSISTENCE AND DEGRADABILITY

Partial information may be available, call OPTIMAL Chemicals.

12.2. ENVIRONMENTAL RISKS

Partial information may be available, call OPTIMAL Chemicals.

12.3. OTHER INFORMATION

No information currently available.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD(S)

Incinerate in a furnace or otherwise dispose of in accordance with appropriate national and local regulations.

Empty containers should be recycled or disposed of through an approved waste management facility.

Disposal methods identified are for the product as sold. For proper disposal of used materials, 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

TRANSPORT CLASSIFICATION

| | |
|---------|---|
| ADR/RID | This product is not submitted to the ADR regulations MONT-BLANC : OK |
| IMDG | This product is not submitted to the IMO regulations |
| MARPOL | ANNEX II: Not evaluated at this moment ANNEX III: Not classified |
| ICAO | This product is not submitted to the ICAO regulations |

15. REGULATORY INFORMATION

15.1. HAZARD CLASSIFICATION

| | |
|------------------|--------------------------|
| DANGER SYMBOL(S) | -- |
| RISK PHRASES | -- |
| SAFETY PHRASES | -- |
| LABEL TEXT | FOR INDUSTRIAL USES ONLY |
| CONTAINS | -- |

15.2. REGULATORY DATA

All other national and local regulations, if applicable to the use, transport or disposal of this product, should be observed.

15.3. CHEMICAL INVENTORY INFORMATION

EINECS

The components of this product are on the EINECS inventory.

| | |
|--|------------------------------|
| Product Name: UCON™ COMPRESSOR LUBRICANT PE-320L | Effective Date: 17 Feb. 2000 |
| MSDS #: CLB33 | Page 7 of 7 |

TSCA

The components of this product are on the TSCA inventory.

16. OTHER INFORMATION

RECOMMENDED USES AND RESTRICTIONS

Please consult the relevant product and/or application information for this Product.

FURTHER INFORMATION

There may be additional information on this product, which may be obtained by calling your OPTIMAL CHEMICALS Sales or Customer Service contact.

OPTIMAL CHEMICALS believe that the information contained herein is current as of the date of the Chemical Safety Data Sheet. Since the use of the information and these opinions and the conditions of use of this product are not within the control of OPTIMAL CHEMICALS, it is the user's obligation to determine the condition of safe use of the products.