



The Ultimate Lubricant

680

DESCRIPTION:

Omega 680 is a high-performance lubricant designed exclusively for Worm Gear applications and performs two major functions of paramount importance to ensure proper operation, efficiency and "maintain-ability":

* Omega 680 reduces friction and wear; this improves the mechanical efficiency of Worm Gear sets and helps extend gear life to an unprecedentedly high degree.

* Omega 680 acts as a highly efficient lubricating medium that reduces friction temperature and thereby keeps heat build-up away from the contact area of Worm Gear Sets. This heat reduction property keeps gear sets operating for longer periods and avoids heat distortion of both the steel worm and bronze gear sets found in most Worm Gears.

ENERGY SAVING:

Omega 680 improves efficiency of Worm Gear sets by at least 5%, and more usually 7-8% (based on test measurements between input torque and output torque). In order to illustrate the energy savings possible, it is known that if efficiency of worm gears were increased by a mere 3%, U.S. industry could save 6 billion dollars annually! Therefore, on even the smallest piece of equipment, over its lifetime, using Omega 680 can provide great energy savings.

Worm gears, by their design, lose about 75% of their potential output power due to heat generated by sliding friction. Other factors that cause inefficiency are hydrodynamic oil churning, bearing friction and other related friction losses. Omega 680 contains special colloidal dispersants that remain in suspension throughout the lubricant to help overcome these friction losses, while providing exceptional protection to the metal gear parts coming into contact with it.

SUPERIOR EFFICIENCY:

Omega 680 High Performance Worm Gear Lubricant provides several important benefits which are here summarized:

- Used on new gear sets, Omega 680 significantly reduces the "break-in" time required to attain optimum operating temperature. By introducing Omega 680 from "new", metal gouging and abrasion can virtually be eliminated, and thereby improve gear set operating life dramatically. Metal Shearing and chipping off due to "newness" can be prevented, and thus wearing down of mating metal surfaces is gradual and non-damaging.
- Omega 680 reduces steady-state gear set operating temperatures, reducing the likelihood of metal fatigue and distortion, plus improving operating efficiency and effective lubricant life. Another advantage is the maintaining of constant lubricant viscosity without introducing power-robbing fluid drag.
- Power transmission efficiency is significantly improved due to Omega 680's ability to drastically reduce sliding friction losses and to provide a similar level of output power from less energy input.

Omega 680's specialized colloidal supplements remain thoroughly dispersed and in suspension throughout the lubricant's service life and thereby eliminates flocculation and settling at the bottom of the sump. An added advantage with Omega 680 is quieter gear operation.

LOWERS OPERATING TEMPERATURE:

Omega 680's super low coefficient of friction and superior dispersion characteristics lower operating temperatures of Worm Gear Sets dramatically. This feature, in turn, extends the life of gear sets and keeps them operating efficiently with minimal wear. Parts replacement and wear and tear can therefore virtually be eliminated by exclusively using Omega 680. In tests, Omega 680 can provide up to a 20% lowering of operating temperature of Worm Gear Sets. Lowered temperatures, in turn lessen the possibility of oxidation and help keep the oil at the optimum viscosity instead of thinning out with rise in temperature.

TYPICAL DATA:

| TEST | ASTM TEST METHOD | TEST RESULT |
|-------------------------------------|---------------------|------------------------|
| | | SAE 90 |
| ISO Viscosity Grade | D-2422 | 220 |
| Appearance | Visual | Black Opaque and Tacky |
| Density, Kg/L @ 15°C | D-1298 | 0.893 |
| Viscosity, cSt @ 40°C | D-445 | 220 |
| Viscosity, cSt @ 100°C | D-445 | 21.3 |
| Viscosity Index | D-2270 | 115 |
| Flash Point, COC, °C(°F) | D-92 | 264(507) |
| Pour Point, °C(°F) | D-97 | -22(-7.6) |
| Total Base Number, mg KOH/g | D-2896 | 8.2 |
| Carbon Residue, Conradson, % Mass * | D-524 | 0.08 |
| Foaming Characteristics - | | |
| All Sequences, After Settling | D-892 | Nil |
| Rust Prevention Characteristics - | | |
| Salt Water, 48 Hours | D-665 | Pass |
| Ash, Sulphated, % Mass | D-874 | 1.65 |

* In excess of ash content

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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name: Omega 680
Omega 680 VG 68
Omega 680 VG 150
Omega 680 VG 220
Omega 680 VG 460

Container size: 5 l, 20 l

1.2. Relevant identified uses of the substance or mixture and uses advised against

Application: Chain oil.

1.3. Details of the supplier of the safety data sheet

| | | |
|----------------------|--|---|
| <u>Supplier:</u> | GB importer: | Sovereign Lubricants (UK) Ltd, Crowtrees Lane, Rastrick, West Yorkshire, HD6 3LZ |
| <u>Manufacturer:</u> | ITW PP & F Korea Limited 13th Fl., Unit B, PAX Tower 609 Eonju-ro, Gangnam-Gu Seoul, Korea 06108 Tel: +82-2-2088-3560 Fax: +82-2-513-3567 magna@magnagroup.com www.magnagroup.com | T: 01484 718674 - F: 01484 400164 enquiries@sovereign-omega.co.uk www.sovereign-omega.co.uk |

Further information can be obtained from: magna@magnagroup.com

1.4. Emergency telephone number

Emergency telephone: Call a Poison Center, emergency number or doctor/physician.
NHS: 111

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SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP: The product is classified: Aquatic Chronic 3;H412

2.2. Label elements

H412 Harmful to aquatic life with long lasting effects.

P273 Avoid release to the environment.

P501 Dispose of contents/container in accordance with local regulations.

2.3. Other hazards

PBT/vPvB: This product does not contain any PBT or vPvB substances.

Other: Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema, skin cracking and oil acne. Degreasing to skin. The harmful effects may increase in used oil.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

The product contains: mineral oil (DMSO < 3% (IP 346)) and additives.

CLP:

| <u>%:</u> | <u>CAS-No.:</u> | <u>EC No.:</u> | <u>REACH Reg. No:</u> | <u>Chemical name:</u> | <u>Hazard classification:</u> | <u>Notes:</u> |
|-----------|-----------------|----------------|-----------------------|---|--|---------------|
| 0.1-1 | 68937-40-6 | 273-065-8 | - | Phenol, isobutylenated, phosphate (3:1) | Aquatic Acute 1;H400 Aquatic Chronic 1;H410 | |
| 0.1-1 | 128-39-2 | 204-884-0 | - | 2,6-Di-tert-butylphenol | Skin Irrit. 2;H315 Aquatic Acute 1;H400 Aquatic Chronic 1;H410 | # |

| <u>Chemical name:</u> | <u>SCL</u> | <u>M (ac)</u> | <u>M (chr)</u> | <u>ATE(o)</u> (mg/kg bw) | <u>ATE(d)</u> (mg/kg bw) | <u>ATE(i)</u> (vapour, mg/L) |
|---|------------|---------------|----------------|--------------------------------|--------------------------------|------------------------------------|
| Phenol, isobutylenated, phosphate (3:1) | | 1 | 1 | - | - | - |
| 2,6-Di-tert-butylphenol | | 1 | 1 | - | - | - |

Notes:

#: The substance has been assigned an exposure limit.

References: The full text for all hazard statements is displayed in section 16.

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SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation: Move into fresh air and keep at rest. In case of persistent throat irritation or coughing: Seek medical attention and bring these instructions.

Skin contact: Remove contaminated clothing immediately and wash skin with soap and water.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. Remove any contact lenses and open eyelids widely. If irritation persists: Seek medical attention and bring along these instructions.

Ingestion: Immediately rinse mouth and drink 1-2 glasses of water. Keep person under observation. If uncomfortable: Transportation to hospital. Bring along these instructions.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects: See section 11 for more detailed information on health effects and symptoms.

4.3. Indication of any immediate medical attention and special treatment needed

Medical attention/treatments: Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media: Small fires: Extinguish with carbon dioxide or dry powder.
Larger fires: Extinguish with foam, carbon dioxide or dry powder.
Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards: During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Protective equipment for fire-fighters: Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace.

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SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Avoid inhalation of oil mist and contact with skin and eyes. Follow precautions for safe handling described in this safety data sheet.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Absorb spillage with oil-absorbing material. Clean contaminated area with oil-removing material.

6.4. Reference to other sections

References: For personal protection, see section 8.
For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Safe handling advice: Observe good chemical hygiene practices. Avoid prolonged and repeated contact with oil, particularly used oil. Always remove oil with soap and water or skin cleaning agent, never use organic solvents. Do not use oil-contaminated clothing or shoes, and do not put rags moistened with oil into pockets.

Technical measures: Use work methods which minimise oil mist production.

Technical precautions: When working with heated oil, mechanical ventilation may be required.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures for safe storage: No special precautions.

Storage conditions: Store in tightly closed original container.

7.3. Specific end use(s)

Specific use(s): Not relevant.

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

No occupational exposure limit assigned.

8.2. Exposure controls

Engineering measures: Provide adequate ventilation and minimise the risk of inhalation of vapours and oil mist. Provide access to washing facilities incl. soap, skin cleanser and fatty cream.

Personal protection: Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Respiratory equipment: In case of inadequate ventilation or risk of inhalation of oil mist, suitable respiratory equipment with combination filter (type A2/P3) can be used.

Hand protection: Wear protective gloves.
Nitrile gloves are recommended.
Thickness: >0.3 mm; Breakthrough time: >240min.
The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material.

Eye protection: Risk of contact: Wear goggles/face shield.

Hygiene measures: Wash hands after handling. Wash contaminated clothing before reuse.

Environmental Exposure Controls: Not available.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state: Liquid.
Colour: Not available.
Odour: Not available.
Odour threshold: Not available.
pH: Not available.
Melting point / freezing point: Not available.
Boiling point: Not available.
Flash point: Not available.
Evaporation rate: Not available.
Explosive limits Not available.
Vapour pressure: Not available.
Vapour density: Not available.
Relative density: ~0.9Not available.
Solubility: Not available.
Partition coefficient (n-octanol/water): Not available.
Auto-ignition temperature (°C): Not available.
Decomposition temperature (°C): Not available.
Viscosity: 68 / 150 / 220 / 460 mm²/s (40°C)
Oxidising properties: Not available.

9.2. Other information

Other data: Not available.

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SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Reactivity: Not reactive.

10.2. Chemical stability

Stability: Stable under normal temperature conditions.

10.3. Possibility of hazardous reactions

Hazardous Reactions: None known.

10.4. Conditions to avoid

Conditions to avoid Heat, sparks, flames.

10.5. Incompatible materials

Incompatible materials: Strong oxidising substances.

10.6. Hazardous decomposition products

Hazardous decomposition products: None in particular.

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SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

The harmful effects may increase in used oil.

Acute Toxicity (Oral): Based on available data, the classification criteria are not met.

Acute Toxicity (Dermal): Based on available data, the classification criteria are not met.

Acute Toxicity (Inhalation): Based on available data, the classification criteria are not met.

Skin Corrosion/Irritation: Based on available data, the classification criteria are not met.

Serious eye damage/irritation: Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation: Based on available data, the classification criteria are not met.

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

Carcinogenicity: Based on available data, the classification criteria are not met.

Reproductive Toxicity: Based on available data, the classification criteria are not met.

STOT - Single exposure: Based on available data, the classification criteria are not met.

STOT - Repeated exposure: Based on available data, the classification criteria are not met.

Aspiration hazard: Based on available data, the classification criteria are not met.

Inhalation: Inhalation of oil mist or vapours formed during heating of the product will irritate the respiratory system and provoke coughing.

Skin contact: Degreasing. Prolonged or frequent contact may cause redness, itching, irritation, eczema, skin cracking and oil acne.

Eye contact: Splashes may irritate.

Ingestion: May irritate and cause malaise.

Specific effects: Prolonged or repeated contact with used oil may cause serious skin diseases, such as dermatitis and skin cancer.

11.2. Information on other hazards

Endocrine disrupting properties: The product does not contain any substance identified as having endocrine disrupting properties.

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SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity: Harmful to aquatic life with long lasting effects.
2,6-Di-tert-butylphenol:
M(ac) = 1
M(chr) = 1
Phenol, isobutylated, phosphate (3:1):
M(ac) = 1
M(chr) = 1

12.2. Persistence and degradability

Degradability: The product is expected to be slowly biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: No data available on bioaccumulation.

12.4. Mobility in soil

Mobility: No data available.

12.5. Results of PBT and vPvB assessment

PBT/vPvB: This product does not contain any PBT or vPvB substances.

12.6. Endocrine disrupting properties

Endocrine disrupting properties: The product does not contain any substance identified as having endocrine disrupting properties.

12.7. Other adverse effects

Other adverse effects: None known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Dispose of waste and residues in accordance with local authority requirements. Waste is classified as hazardous waste.

Waste from residues: EWC-code: 13 02 05

Contaminated packaging: Dispose of contaminated packings as residue.

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SECTION 14: TRANSPORT INFORMATION

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/AND/RID).

14.1. UN number

UN-No: -

14.2. UN proper shipping name

Proper Shipping Name: -

14.3. Transport hazard class(es)

Class: -

14.4. Packing group

PG: -

14.5. Environmental hazards

Marine pollutant: -

Environmentally Hazardous substance: -

14.6. Special precautions for user

Special precautions: Not relevant.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk: Not relevant.

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulation: UK Statutory Instruments, 2021 No. 904, CONSUMER PROTECTION ENVIRONMENTAL PROTECTION HEALTH AND SAFETY. The REACH etc. (Amendment) Regulations 2021.
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments.
The Control of Substances Hazardous to Health Regulations 2002 (S.I 2002 No. 2677) with amendments.
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2019 (SI 2019 No. 720), as amended.
EH40/2005, Workplace exposure limits 2005, with amendments.
The List of Wastes (England) (Amendment) Regulations 2005. (SI 2005 No. 895).

15.2. Chemical Safety Assessment

CSA status: No chemical safety assessment has been carried out.

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SECTION 16: OTHER INFORMATION

The user must be instructed in the proper work procedure and be familiar with the contents of these instructions.

Handling of used oils:

Protect health - avoid prolonged and repeated skin contact. Wash with soap and water. Protect the environment - do not pollute drains, water courses or the soil. Contact your local authority for any used oil disposal instructions.

The following sections contain revisions or new statements: 1, 2, 3, 4, 7, 8, 11, 12, 13, 15, 16.

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Abbreviations and acronyms

used in the safety data sheet: CSA= Chemical Safety Assessment.

M(ac) = M-factor acute toxicity.

M(chr) = M-factor chronic toxicity.

PBT = Persistent, Bioaccumulative and Toxic.

vPvB = very Persistent and very Bioaccumulative.

Additional information:

All components of this product are listed or exempt from listing on the TSCA inventory. Classification according to Regulation (EC) No. 1272/2008: Calculation method.

Wording of H-statements:

| | |
|------|---|
| H315 | Causes skin irritation. |
| H400 | Very toxic to aquatic life. |
| H410 | Very toxic to aquatic life with long lasting effects. |
| H412 | Harmful to aquatic life with long lasting effects. |

The information on this data sheet represents our current data and is reliable provided that the product is used under the prescribed conditions and in accordance with the application specified on the packaging and/or in the technical guidance literature. Any other use of the product which involves using the product in combination with any other product or any other process is the responsibility of the user.

Made by DHI - Environment and Toxicology, Agern Allé 5, DK-2970 Hørsholm, Denmark.
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