

# Omega 680

## High-Performance Worm Gear Oil SAE 90 & SAE 140

### DESCRIPTION:

OMEGA 680 High-Performance Worm Gear Oil is a high-performance lubricant designed exclusively for worm gear and other heavy-duty applications. It performs 2 major functions of paramount importance to ensure proper operation, efficiency and "maintainability":

- 1) OMEGA 680 reduces friction and wear; this improves the mechanical efficiency of worm gear sets and helps extend gear life to an exceptionally high degree.
- 2) 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.



Black opaque color of  
OMEGA 680



OMEGA 680 is available in 20 and  
5 litre pack-sizes

### 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.

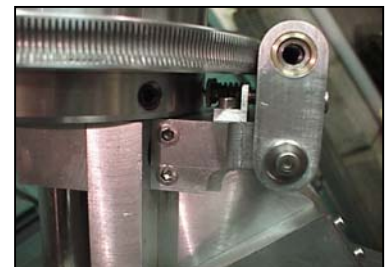
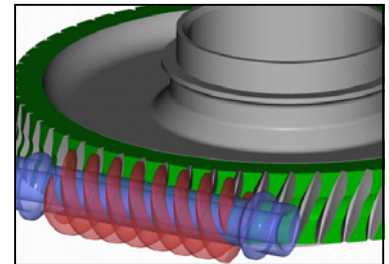


Worm gears, by their design, lose about 75% of their potential output power due to heat generated by sliding friction. Other factors that cause inefficiency are

hydrodynamic oil churning, bearing friction and other related friction losses. OMEGA 680 High-Performance Worm Gear Oil 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.

### **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 its optimum viscosity instead of thinning out with rise in temperature.



### **SUPERIOR EFFICIENCY:**

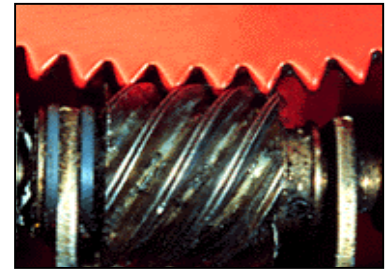
OMEGA 680 High-Performance Worm Gear Oil delivers the following important benefits:

- 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, diminishing 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 decrease 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 – enabling a more favorable working environment.

#### RECOMMENDED APPLICATIONS:

- Specially designed for use in enclosed worm gears operating at moderate to high speeds and temperatures, with high viscosity OMEGA 680 withstands heavy loads, slow speeds and high temperatures
- Suitable for worm gear sets requiring strong resistance to oxidation and thermal degradation, and the build-up of harmful deposits caused by extreme temperatures
- OMEGA 680 protects against rust and corrosion and offer outstanding film strength and superior lubricity
- Also ideal for lubricating all types of bevel and spur gears, plain and rolling bearings



Worm gear



Worm gear



Bevel gear



Spur gear

**TYPICAL DATA:**

TEST	ASTM	SAE 90	SAE 140
	TEST METHOD		
ISO Viscosity Grade	D-2422	220	460
Appearance	Visual	Black Opaque and Tacky	Black Opaque and Tacky
Density, Kg/L @ 15°C	D-1298	0.893	0.901
Viscosity, cSt @ 40°C	D-445	220	460
@ 100°C	D-445	21.3	30.7
Viscosity Index	D-2270	115	110
Flash Point, COC, °C	D-92	264	266
Pour Point, °C	D-97	-22	-20
Total Base Number, mg KOH/g	D-2896	8.2	8.2
Carbon Residue, Conradson, % Mass *	D-524	0.08	0.08
Foaming Characteristics - All Sequences, After Settling	D-892	Nil	Nil
Rust Prevention Characteristics - Salt Water, 48 Hours	D-665	Pass	Pass
Ash, Sulphated, % Mass	D-874	1.65	1.65

\* In excess of ash content

# SAFETY DATA SHEET



Product name: Omega 680  
Supersedes date: 2015-06-01  
Product No.:

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Last revised date: 2016-05-10  
SDS-ID: GB-EN/6.1

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

### 1.1. Product identifier

Product name: Omega 680

Container size: 5 l, 20 l **\*\*Manufactured in Australia\*\***

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

Application: Gear oil.

### 1.3. Details of the supplier of the safety data sheet

Supplier: EU importer: Sovereign Lubricants (UK) Ltd, Crowtrees Lane,  
Rastrick, West Yorkshire, HD6 3LZ  
T: 01484 718674 - F: 01484 400164  
enquiries@sovereign-omega.co.uk  
www.sovereign-omega.co.uk

Manufacturer 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  
www.magnagroup.com

### 1.4. Emergency telephone number

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

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

CLP: 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 as hazardous waste.

### 2.3. Other hazards

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

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.2. Mixtures

The product contains: mineral oil and additives.  
Only classified substances above threshold limits are shown.

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CLP:

%:	CAS-No.:	EC No.:	REACH Reg. No.:	Chemical name:	Hazard classification:	Notes:
0,1-1	68649-42-3	272-028-3	01-2119493635-27-	Zinc dialkyl dithiophosphate	Eye Irrit. 2;H319 Aquatic Chronic 2;H411	
0,01-0,1	74499-35-7	-		Phenol, (tetrapropenyl) derivs.	Skin Irrit. 2;H315 Repr. 2;H361f Aquatic Acute 1;H400 Aquatic Chronic 1;H410	

Notes: DMSO-content < 3%

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

## 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 or after inhalation of oil mist: Seek medical attention and bring along these instructions.

Skin contact: Remove contaminated clothing immediately and wash skin with soap and water. In case of rashes, wounds or other skin disorders: Seek medical attention and bring along these instructions.

Eye contact: Immediately flush with plenty of water for up to 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 plenty of water. Keep person under observation. If person becomes uncomfortable seek hospital and bring 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: Not known.

## 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): Lubricant.

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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

No occupational exposure limit assigned.

### 8.2. Exposure controls

<u>Engineering measures:</u>	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.
<u>Personal protection:</u>	Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
<u>Respiratory equipment:</u>	In case of inadequate ventilation or risk of inhalation of oil mist, suitable respiratory equipment with combination filter (type A2/P3) can be used.
<u>Hand protection:</u>	Wear protective gloves. Nitrile gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable. Other types of gloves can be recommended by the glove supplier.
<u>Eye protection:</u>	Risk of contact: Wear goggles/face shield.
<u>Hygiene measures:</u>	Wash hands after contact. Wash contaminated clothing before reuse.
<u>Environmental Exposure Controls:</u>	Not available.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

<u>Appearance:</u>	black liquid
<u>Odour:</u>	almost odourless
<u>pH:</u>	not relevant
<u>Boiling point:</u>	not available
<u>Flash point:</u>	>150°C
<u>Explosive limits</u>	not available
<u>Vapour pressure:</u>	not available
<u>Relative density:</u>	~0,9
<u>Solubility:</u>	insoluble in water

### 9.2. Other information

<u>Other data:</u>	Kinematic viscosity: > 220 mm <sup>2</sup> /s (40°C)
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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 None specific.

### 10.5. Incompatible materials

Incompatible materials: Strong oxidising substances.

### 10.6. Hazardous decomposition products

Hazardous decomposition products: None in particular.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

The harmful effects may increase in used oil.

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.

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## SECTION 12: ECOLOGICAL INFORMATION

### **12.1. Toxicity**

Ecotoxicity: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Oil spills are generally hazardous to the environment.

The product contains a substance which is very toxic to aquatic organisms and which may cause long term adverse effects in the aquatic environment.

Phenol, (tetrapropenyl) derivs.  
Expected LC/EC50 value:  $0.01 < LC50 \leq 0.1$  mg/l

### **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: Not relevant.

### **12.6. 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

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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/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: None known.

### **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: Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, with amendments.  
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.  
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

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Additional information: Classification according to Regulation (EC) No. 1272/2008: Calculation method.

Wording of H-statements:

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H361f	Suspected of damaging fertility.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

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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, Ager Allé 5, DK-2970 Hørsholm, Denmark.  
[www.dhigroup.com](http://www.dhigroup.com).

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