

Omega 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.

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.

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.

TYPICAL DATA:

TEST	ASTM	SAE 90
	TEST METHOD	
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
@ 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

MAGNA INDUSTRIAL CO. LIMITED

Total Quality Maintenance

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MATERIAL SAFETY DATA SHEET

DATE 01 Aug 2014

SECTION 1 - IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Product Name/Code Omega 680

Company Identification

Omega Manufacturing Division,
Magna Industrial Co. Limited,
1801, Guardian House,
32 Oi Kwan Road,
Wanchai, Hong Kong.

Distributor

Alshawi Trading,
Block 351, Road 51, Bldg 20, Manama - Bahrain.
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SECTION 2 - HAZARDS IDENTIFICATION

Not classified as hazardous.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

<u>Ingredients</u>	<u>CAS Number</u>	<u>Wt.%</u>	<u>Classification</u>
Highly refined mineral oil**	64742-62-7	30-60	-
Highly refined mineral oil**	64742-65-0	10-30	-
Molybdenum disulphide	1317-33-5	1-10	-

SECTION 4 - FIRST-AID MEASURES

Eye Contact: Flush with plenty of water for at least 15 minutes. Seek immediate medical attention.

Skin Contact: Wash thoroughly with soap and water. Obtain medical attention in case of skin irritation or other cause for concern.

Inhalation: Move patient to open air.

Ingestion: Do not induce vomiting. Seek immediate medical attention.

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SECTION 5 - FIRE-FIGHTING MEASURES

Extinguishing Media: Dry chemical, waterfog, foam, sand and carbon dioxide.

Special Protective Equipment for Fire Fighters: Self-contained breathing apparatus.

Unusual Fire and Explosion Hazards: Dense smoke. Carbon dioxide, carbon monoxide.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Spillage: Transfer bulk of material into another container. Absorb remaining residue with proper absorbents such as sand, vermiculite. Sweep up and dispose of in accordance with local and national regulations.

SECTION 7 - HANDLING AND STORAGE

Keep containers closed. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Wash clothing before reuse. Keep away from feed and food products.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

ACGIH TLV

Highly refined mineral oil	5 mg/m ³ (oil mist)
Molybdenum disulphide	15 mg/m ³

Eye Protection: Safety goggles and full-face shield

Hand Protection: Rubber or plastic oil resistant gloves.

Ventilation: Use under well ventilated conditions.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Dark grey liquid

Odour: Mineral oil odor

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pH: N.A.
Specific Gravity: 0.85-0.90
Vapour Pressure: N.A.
Boiling Point: N.A.
Melting Point: N.A.
Flash Point: above 200°C
Flammability: N.A.
Evaporation Rate: N.A.
Solubility in Water: Insoluble

SECTION 10 - STABILITY AND REACTIVITY

Stable under normal condition.

Materials to Avoid: Strong oxidizing agents, hydrogen peroxide, chromic acid, bromine.

Toxic compounds may form on thermal decomposition. Hazardous combustion products: carbon monoxide, carbon dioxide.

SECTION 11 - TOXICOLOGICAL INFORMATION

There is no lethal dose information available.

Inhalation: Inhalation of vapours can cause irritation of the respiratory tract. High concentrations of oils, mists or vapours can cause chemical pneumonitis.

Skin: May cause irritation, drying and cracking.

Eyes: Cause irritation.

Ingestion: May cause irritation in mouth and stomach, thirst, nausea, vomiting, diarrhoea, with possible collapse if large amounts ingested. Aspiration of material upon vomiting may cause chemical pneumonitis.

SECTION 12 - ECOLOGICAL INFORMATION

No ecological information is available at present.

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SECTION 13 - DISPOSAL CONSIDERATIONS

Comply with all local and national regulations regarding disposal.

SECTION 14 - TRANSPORT INFORMATION

UN Number : Not regulated

IATA Class : Not regulated, Packing Group: Not regulated

IMDG Class : Not regulated, Packing Group: Not regulated

Not considered hazardous for transport purpose.

SECTION 15 - REGULATORY INFORMATION

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SECTION 16 - OTHER INFORMATION

R-phrases: -

S-phrases: -

**The highly refined mineral oil used in this product contains less than 3% DMSO extract as measured by IP 346.

Remarks: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind, express or implied, and we assume no responsibility for any loss, damage, or expense, direct or consequential, arising out of their use.