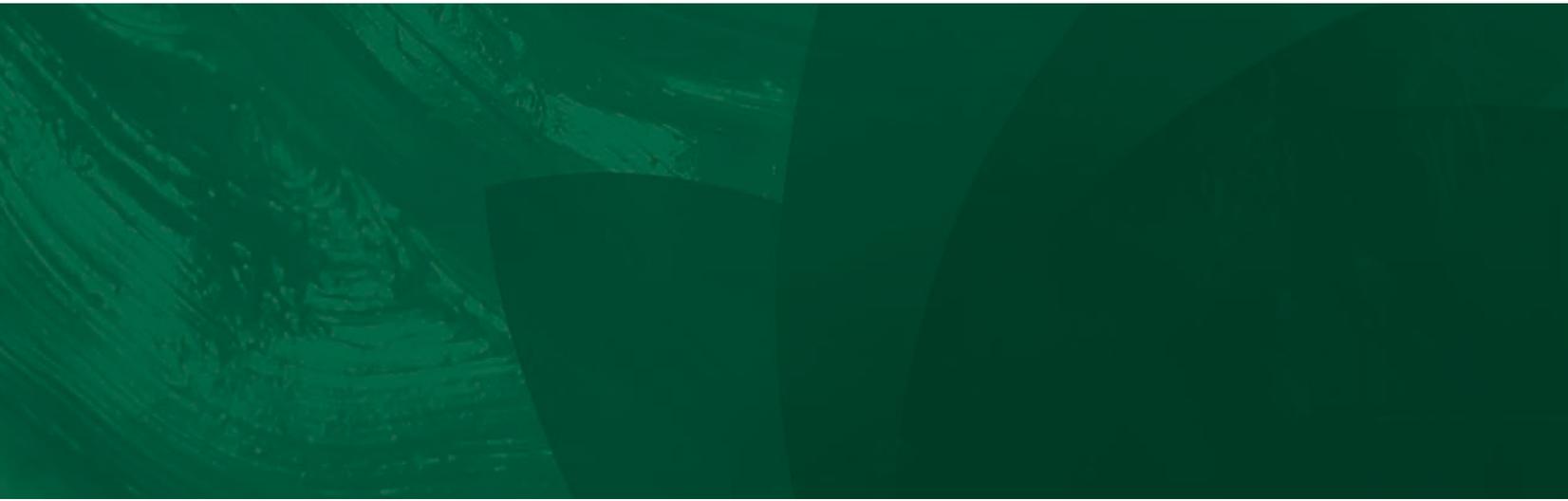


# ***S-OIL GREASES***

Responding to various market demands  
by repeating continuous change and development



***PRODUCT GUIDE***



# ***THE MOST COMPETITIVE OIL REFINERY IN THE ASIA-PACIFIC***

669,000 BPD of Crude distillation (World No.5)

1.8 Mil ton of PX Production (World No.2)

42,700 BPD of Base Oil Capacity (World No.2)

## **The Most Profitable and Integrated Energy Company**

S-OIL, established in 1976 has grown into one of the most competitive oil refiners in the Asia-Pacific region by establishing profitability-oriented management strategies and nurturing dynamic and progressive spirit in the management. We operate the oil refinery facility with the capacity of 669,000 barrels per day (BPD) and other facilities that can produce petrochemicals and lube base oil in the Onsan Refinery in Ulsan. We are strengthening our status as a leader in protecting customers and the environment by producing and supplying the best quality oil products based on the world-class Bunker-C Cracking Center (BCC) and the Xylene Center, a PX plant with the world's highest production capacity for a single facility.

## **Global DJSI World for seven consecutive years**

S-OIL was selected as a member of DJSI (Dow Jones Sustainability Index) World for seven consecutive years, a first among Asian oil refineries. DJSI was an index created by Dow Jones & Company by selecting 10% of leading sustainability driven companies through the integrated assessment of financial, economic, environmental, and social performances of the largest 2,500 firms worldwide. Being included in the DJSI World itself is considered as having long-term competitiveness. The DJSI World recognized our continuous efforts and achievements based on the excellent corporate governance structure and transparent management under the philosophy of sustainable management.

## **S-OIL included on the Fortune 500**

S-OIL has been repeatedly included on the Fortune 500 that lists the largest companies by total revenue every year by Fortune, an American business magazine, since it was named to the list for the first time in 2007. Being selected for the Fortune 500 proves that S-OIL is a truly world-scale company. S-OIL avoids resting on the laurels but continues to evolve; currently engages in new investment projects related to the Residue Upgrading Complex and the Olefin Downstream Complex while building the TS&D (Technical Service & Development) Center in Magok District, Seoul. These projects to be completed by 2018 are expected to serve as a springboard for our future growth.

# GREASE MP/EP



## S-OIL GREASES

Choice the best performance and technology for the future!

### S-OIL GREASE MP/EP

Multipurpose extreme pressure grease

#### Applications

- S-OIL GREASE MP is a true multipurpose lubricant grease used in automotive and general industrial applications except on high-load or shock-loading applications, formulated to offer the best lubrication performance within - 20°C ~ 130°C.
- S-OIL GREASE EP is a multipurpose extreme pressure lithium grease extensively used for industrial applications, including high-load and high-shocking automotive and marine applications.
- S-OIL GREASE EP 000, 00 and 0 are formulated primarily for intensive greasing applications on transfer pump onboard concrete pump car.

#### Advantages

- Excellent mechanical stability and shear stability minimizes penetration variation even after rigorous operation.
- Excellent oxidation stability prevents hardening or deposition even in continued use at high temperature or long-term storage.
- S-OIL GREASE EP contains a special extreme pressure additive, which improves load-bearing performance significantly and prevents disruption of the lubrication film even when subject to shock loads.
- Formulated specifically to provide sufficient resistant against washout caused by contact with moisture, preventing corrosion of the bearing surface because of mixing of water.

#### Specification

- KS M 2130
- ISO L XBCDA (S-OIL GREASE MP)
- ISO L XBCFB (S-OIL GREASE EP)

#### Characteristics

Test items	Method	Unit	S-OIL GREASE MP			S-OIL GREASE EP					
			0	2	3	000	00	0	1	2	3
NLGI grade	ASTM D-217	-	0	2	3	000	00	0	1	2	3
TEXTURE	-	-	Smooth			Smooth					
Color	ASTM D-1500	-	Brown			Dark Brown					
Penetration 25°C	ASTM D-217	0.1mm	385	278	237	450	416	370	317	276	238
Copper corrosion 100°C X 24 Hr	ASTM D-130	-	1a	1a	1a	1a	1a	1a	1a	1a	1a
Dropping point	IP 396/DIN ISO 2176	°C	190	216	219	137	171	189	201	217	219

\* The typical characteristics are given as a guide only.

# GREASE SUPER EP



## S-OIL GREASE SUPER EP

Multipurpose Lithium Grease

### Applications

- S-OIL GREASE SUPER EP is a multipurpose grease thickened with lithium soap thickener and refined mineral base oil.
- It has outstanding water resistance and corrosion protection.
- S-OIL GREASE SUPER EP is well suited for multipurpose lubrication.

### Advantages

- Lubrication for ball bearings in automotive and general industrial uses.

### Useful Temperature

- -30 ~ 140 °C



### Characteristics

Test items	Method	Unit	S-OIL GREASE SUPER EP
NLGI grade	ASTM D-217	-	2
TEXTURE	-	-	Smooth
Color	ASTM D-1500	-	Pale brown
Penetration 25°C	ASTM D-217	0.1mm	285
Copper corrosion, 100°C X 24 Hr	ASTM D-130	-	1a
Dropping point	IP 396/DIN ISO 2176	°C	220

\* The typical characteristics are given as a guide only.

# GREASE MOLY



## S-OIL GREASE MOLY

Multipurpose extreme pressure lithium grease with molybdenum disulfide

### Applications

- S-OIL GREASE MOLY is a true multipurpose grease, formulated for lubrication of various shock loaded or vibrating applications in transport, agriculture and off road equipment, operating in wet, dusty and/or dry conditions.
- S-OIL GREASE MOLY is suitable for boundary lubrication at high pressures and high temperatures. In case of accidental overheating, the presence of molybdenum disulfide will guarantee good lubrication, and avoid any jamming or sticking.
- S-OIL GREASE MOLY always avoid contamination of the grease by dust and/or dirt when applying, preferably use a pneumatic pump system or cartridges.

### Advantages

- S-OIL GREASE MOLY forms a durable lubrication film, resulting in reduction of maintenance and down-time costs.
- Miscible with most other conventional soap greases
- Excellent mechanical stability avoiding ejection or loss of consistency during operation.
- Excellent adhesion to metal.
- Good thermal stability, leading to high resistance to temperature variations.
- S-OIL GREASE MOLY does not contain lead, or other heavy metals considered harmful to human health and the environment.

### Specification

- ISO 6743-9: L-XBCEB 1, L-XBCEB 2
- DIN 51 502: MPF1K -30, MPF2K -25

### Characteristics

Test items	Method	Unit	S-OIL GREASE MOLY 2
NLGI grade	ASTM D-217	-	2
TEXTURE	-	-	Smooth
Color	ASTM D-1500	-	Gray
Operating Temperature	-	°C	-25 ~ 130
Penetration, 25°C	ASTM D-217	0.1mm	276
4-Ball Weld Load	ASTM D-2596	kgf	400
Cooper corrosion, 100°C X 24hr	ASTM D-130	-	1a
Dropping point	IP 396/DIN ISO 2176	°C	>190

\* The typical characteristics are given as a guide only.

# GREASE HT



## S-OIL GREASE HT

Lithium Complex Wheel Bearing Grease

### Applications

- S-OIL GREASE HT is a premium high-speed, thermal-resistant grease formulated for automotive wheel bearings, using lithium complex-based thickener, refined mineral oil, and various additives.
- For automotive (passenger/commercial vehicles) wheel bearings.
- For high-temperature, high-speed bearing lubrication of general industrial machinery.

### Advantages

- Excellent lubrication performance at high temperatures for thermal resistance and mechanical stability of the lithium complex thickener, avoiding ejection or loss of consistency when used in high-speed wheel bearings for a long time.
- Excellent water resistance, resulting in less water washout in conditions where frequent contact with moisture is expected.
- Excellent resistance against wear and load, minimizing the bearing wear under high load thus guaranteeing lubrication for a long time.
- Compatible with synthetic resins, preventing damage to synthetic resin-based sealing materials even under long-term contact with it.

### Specifications

- ISO 6743-9: L-XCGIB 2
- DIN 51 502: KP2S-30

### Characteristics

Test items	Method	Unit	S-OIL GREASE HT 2	S-OIL GREASE HT 3
NLGI grade	ASTM D 217	-	2	3
Texture	-	-	Smooth/Buttery	Smooth/Buttery
Color	ASTM D-1500	-	Amber	Amber
Operating Temperature	-	°C	-30 ~ 200	-30~200
Penetration 25°C	ASTM D 217	0.1mm	280	235
4-Ball test	ASTM D 2596	kgf	>250	>250
Dropping point	IP 396/NFT 60 102 C	°C	266	260

\* The typical characteristics are given as a guide only.

# GREASE LT



## S-OIL GREASE LT

Low Temperature Lithium Grease

### Applications

- S-OIL GREASE LT is made from mixed base oil and lithium soap thickener.
- It has excellent performance of low temperature and water resistance.
- S-OIL GREASE LT works well for automotive body lubrication where excellent low temperature performance is required.

### Advantages

- Lubrication for automobile parts such as body, chassis, motor bearings and window regulator.

### Useful Temperature

- -40 ~ 150 °C



### Characteristics

Test items	Method	Unit	S-OIL GREASE LT
NLGI grade	ASTM D-217	-	2
TEXTURE	-	-	Smooth
Color	ASTM D-1500	-	Pale brown
Penetration 25°C	ASTM D-217	0.1mm	281
Copper corrosion, 100°C X 24 Hr	ASTM D-130	-	1a
Dropping point	IP 396/DIN ISO 2176	°C	230

\* The typical characteristics are given as a guide only.

# S-OIL GREASE Package Line-up



Product	Package	Image
S-OIL GREASE MP 0	15Kg Pail	
S-OIL GREASE MP 2	0.5Kg / 1Kg / 3Kg / 15Kg Pail / 180Kg Drum	
S-OIL GREASE MP 3	0.5Kg / 1Kg / 3Kg / 15Kg Pail / 180Kg Drum	
S-OIL GREASE EP 0	15Kg Pail / 180Kg Drum	
S-OIL GREASE EP 00	15Kg Pail / 180Kg Drum	
S-OIL GREASE EP 000	15Kg Pail / 180Kg Drum	
S-OIL GREASE EP 1	15Kg Pail / 180Kg Drum	

Product	Package	Image
S-OIL GREASE EP 2	0.5Kg / 1Kg / 3Kg / 15Kg Pail / 180Kg Drum	
S-OIL GREASE EP 3	0.5Kg / 1Kg / 3Kg / 15Kg Pail / 180Kg Drum	
S-OIL GREASE HT 2	1Kg / 15Kg Pail / 180Kg Drum	
S-OIL GREASE HT 3	1Kg / 15Kg Pail / 180Kg Drum	
S-OIL GREASE MOLY 2	15Kg Pail / 180Kg Drum	
S-OIL GREASE LT 2	15Kg Pail	
S-OIL GREASE SUPER EP 2	15Kg Pail / 180Kg Drum	



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