



## Mobil SHC™ Gear Series

Mobil Industrial, Canada

Gear Oils

### Product Description

Mobil SHC™ Gear Series is a line of exceptional performance, synthetic industrial gear oils designed to provide outstanding protection of gears and bearings, extended oil life even under extreme conditions, helping to enable problem-free operation of equipment and increased customer productivity. These scientifically engineered synthetic lubricants are formulated from synthetic base fluids that have exceptional oxidation and thermal properties and excellent low temperature fluidity. The high viscosity index of these oils deliver less change in viscosity with changes in temperature, enabling wider operating temperature range and improved low temperature startup. Mobil SHC Gear Series lubricants contain an advanced proprietary additive system designed to provide excellent protection against conventional wear modes such as scuffing as well as a high level of resistance against micropitting fatigue. In addition, compared to conventional gear oil chemistries, it offers the potential for improved lubrication of gearbox rolling element bearings. Mobil SHC Gear Series products offer outstanding rust and corrosion protection relative to conventional gear oils, even in the presence of seawater contamination. They show no tendency to plug fine filters even when wet and have excellent compatibility with ferrous and non-ferrous metals even at elevated temperatures. Mobil SHC Gear Series also exhibit outstanding compatibility with elastomers in static seal tests. They have outstanding EP properties that provide protection even under shock load conditions. The synthetic base stocks used in Mobil SHC Gear Series oils have inherently low traction properties that result in low fluid friction in the load zone of non-conforming surfaces such as gears and rolling element bearings. Reduced fluid friction produces lower operating temperatures and can help improve gear efficiency.

Mobil SHC Gear lubricants are recommended for enclosed industrial gear drives including steel-on-steel spur, helical, and bevel gears. They are especially recommended for applications that may be subject to micropitting: especially heavily loaded gearboxes with surface-hardened tooth metallurgies. It may also be used in gear applications where extreme low and/or high temperatures are encountered and applications where corrosion may be severe.

### Features and Benefits

Mobil SHC Gear Series lubricants are part of the Mobil SHC line of products that are recognized and appreciated around the world for innovation and outstanding performance. These synthetic products, pioneered by our research scientists, symbolize the continuing commitment to using advanced technology to provide lubricants with excellent balanced performance. A key factor in the development of Mobil SHC Gear Series was the close contacts between our scientists and application specialists with key OEMs to ensure that our product offering would provide exceptional performance with rapidly evolving industrial gear designs and operation. Not least among the benefits shown in work with OEMs is the ability to resist micropitting wear which can occur with some highly loaded, case-hardened gearing applications. This cooperative work also demonstrated the all-round balanced performance benefits for the new Mobil SHC Gear technology, including a wide temperature range of application.

To address the issue of micropitting wear, our product formulation scientists designed a proprietary combination of additives which would resist traditional gear wear mechanisms as well as protecting against micropitting. Mobil SHC Gear products provide exceptional oil life and deposit control and resistance to thermal/oxidative and chemical degradation, as well as the balance of the performance features. The patent-pending combination of synthetic base oils also provides exceptional low temperature fluidity characteristics unmatched by conventional mineral oil gear lubricants and is a key benefit for remote, low ambient temperature applications. The Mobil SHC Gear Series lubricants offer the following potential benefits:

Features	Advantages and Potential Benefits
Superb protection from micropitting fatigue wear as well as high resistance to traditional scuffing wear	Helps extend gear and bearing life in enclosed gear drives operating under extreme conditions of load, speed and temperature Helps reduce unplanned downtime; less maintenance - especially critical for difficult to access gearboxes.
Excellent resistance to degradation at high temperatures	Helps extend oil life and drain intervals and reduce oil consumption, which can lower maintenance costs
Low traction	Helps reduce energy consumption and lower operating temperatures

Features	Advantages and Potential Benefits
High viscosity index equating to reduced viscosity change with temperature	Ability to operate at both high and low temperatures: especially critical in remote applications with no oil cooling or heating
Excellent resistance to rust and corrosion and very good demulsibility	Helps to ensure smooth, trouble-free operation at high temperatures or in applications subject to water contamination Excellent compatibility with a variety of soft metals
Excellent shear stability	Helps extend gear and bearing life
Resistance to filter plugging, even in the presence of water	Fewer filter changes; which can help reduce maintenance costs
Excellent seal compatibility	Less contamination and lower potential for oil leakage
Excellent compatibility with common gearbox materials and with mineral-based gear oils	Easy changeover from many mineral products

## Applications

Application Considerations: While the Mobil SHC Gear Series are compatible with mineral oil based products, admixture may detract from their performance. Consequently it is recommended that before changing a system to one of the Mobil SHC Gear Series, it should be thoroughly cleaned out and flushed to achieve the maximum performance benefits.

Mobil SHC Gear Series exceptional performance, synthetic industrial gear oils are designed to provide optimum equipment protection and oil life even under extreme conditions. They are especially formulated to resist micropitting of modern, case hardened gearing and can operate in both high and low temperature environments. Typical applications include:

- Modern, highly loaded gearboxes used in the paper, steel, oil, textile, lumber and cement industries where gear protection and optimum oil life are required.
- Plastic extruder gearboxes

Mobil SHC Gear Series ISO VG 150, 220, 320, 460 and 680 are approved under General Electric's (GE) gear oil specification D50E35 for use in off-highway vehicle motorized wheel gearbox applications.

## Specifications and Approvals

Mobil SHC Gear meets or exceeds the following industry specifications	150	220	320	460	680	1000
Meets AGMA 9005-E02	X	X	X	X	X	
Meets DIN 51517 Part 3 (CLP)	X	X	X	X	X	X
Meets ISO 12925-1 Type CKD	X	X	X	X	X	
Meets ISO 12925-1 Type CKT	X	X				

Mobil SHC Gear has the following builder approvals	150	220	320	460	680	1000
SIEMENS AG Flender gear units, T 7300, Table A-c, Flender Code No.	A36	A35	A34	A33	A32	A31
SEW Eurodrive SEW IG CLP HC	150	220	320	460	680	1000
GE Motorized Wheel	D50E35	D50E35	D50E35	D50E35	D50E35	D50E35

## Typical Properties

Mobil SHC Gear Series	150	220	320	460	680	1000
ISO Viscosity Grade	150	220	320	460	680	1000
Viscosity, ASTM D 445						

Mobil SHC Gear Series	150	220	320	460	680	1000
cSt @ 40°C	150	220	320	460	680	1000
cSt @ 100°C	22.2	30.4	40.6	54.1	75.5	99.4
Viscosity Index, ASTM D 2270	176	180	181	184	192	192
Pour Point, °C, ASTM D 97	-45	-39	-33	-27	-27	-24
Flash Point, °C, ASTM D 92	233	233	233	234	234	234
Brookfield @ 0°F (-18°C), cP, ASTM D 2983					41000	96000
Brookfield @ -20°F (-28°C), cP, ASTM D 2983	18200	35000	57000	107000	156000	500000
Density 60°F (15,6°C), g/ml	0.86	0.86	0.86	0.86	0.86	0.87
Total Acid Number, mg KOH/g, ASTM D 664	0.9	0.9	0.9	0.9	0.9	0.9
4 Ball EP Test, kgf, ASTM D 2783						
Weld Load	200	200	200	200	200	200
Load Wear Index	51	51	51	51	51	51
FZG Micropitting, FVA Proc No. 54, 90°C						
Fail Stage	10	10	10	10	10	10
GFT-Class	High	High	High	High	High	High
FZG Scuffing, ISO 14635-1 (mod) A/8.3/90, Fail Stage	13	14	14	14	14	14
FZG Scuffing, ISO 14635-1 (mod) A/16.6/90, Fail Stage	Not tested	>14	>14	>14	>14	>14
Copper Corrosion, 3H @ 121°C, ASTM D 130	1B	1B	1B	1B	1B	1B
Rust protection, ASTM D665, Sea Water	Pass	Pass	Pass	Pass	Pass	Pass
Demulsibility of EP Oils, Free Water, ml, ASTM D 2711	88	87	85	84	87	
Water Separability, ASTM D 1401, Time to 40/37/3 at 82°C, minutes	10	10	10	15	25	40
Foaming Characteristics, ASTM D 892, Seq. II, Tendency/Stability, ml/ml	0/0	0/0	0/0	20/0	0/0	0/0

## Health and Safety

Based on available information, this product is not expected to produce adverse effects on health when used for the intended application and the recommendations provided in the Material Safety Data Sheet (MSDS) are followed. MSDS's are available upon request through your sales contract office, or via the Internet. This product should not be used for purposes other than its intended use. If disposing of used product, take care to protect the environment.

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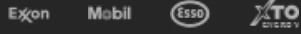
Typical Properties are typical of those obtained with normal production tolerance and do not constitute a specification. Variations that do not affect product performance are to be expected during normal manufacture and at different blending locations. The information contained herein is subject to change without notice. All products may not be available locally. For more information, contact your local ExxonMobil

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