

ANDEROL[®] 5000 PLUS Series Advanced Technology Synthetic Gear and Bearing Oils, Extreme Pressure (EP)

ANDEROL[®] 5000 PLUS EP Synthetic Gear Oil product series are designed for gear applications requiring high micropitting resistance and protection under extreme conditions. They are formulated using a specific balance of synthetic base stocks in order to provide performance greatly superior to conventional petroleum oils. The base stock technology coupled with the additive system offers significantly improved load carrying ability, excellent wear and rust protection, higher viscosity indices, higher flash points, low pour points, cleaner running systems, and improved thermal and oxidative stability which provide higher gearbox reliability, extended lubricant life and reduced maintenance costs.

Recommended Applications:

- Particularly suited for heavily and shock loaded gear applications in extreme service conditions and remote locations
- All types of enclosed gear drives
- Bearings, including plain, rolling elements and anti-friction types
- Applications requiring high micropitting resistance such as in Wind Turbine Gear systems

Features and Benefits:

- Protects against micropitting and scuffing of gear teeth and provides extended bearing life
- Superior oxidative and thermal stability compared to mineral oil
- Wide operating temperature range
- Lower maintenance costs
- Excellent load carrying ability
- Corrosion resistant
- Extended lubricant life
- Improved cleanliness
- Compatible with paints, gaskets, and seals used with conventional petroleum based oils
- Compatible with petroleum oils, allowing minimal effort to changeover

Approval and Specifications:

- Flender (Siemens) Helical, Bevel and Planetary Gear Units and Geared Motors (Rev. 13)
- Maag Gear (FLSmidth) “Recommended Lubricants for Gearboxes and Toothed couplings”, Doc No 60000208.
- Hansen Industrial Transmissions (Sumitomo) “Acceptance of Lubricating Oils for Industrial Gear Units”, BUI-TEC-2009-4-001.
- Fives Cincinnati P-Specifications (formerly Cincinnati Machine).
- Sumitomo Paramax Series gearboxes
- GE Off-Highway Vehicle Gearbox Oil D50E35 B, C, D, E
- Geremia Redutores Ltda.
- WEG-Cestari Redutores Ltda.
- Zanini Renk Equipamentos Industriais Ltda.
- Meets or exceeds the requirements of:
 - AISE 224 (formerly USS 224)
 - ANSI/AGMA 9005-E02 (EP)
 - David Brown S1.53.106
 - DIN 51517-3
 - ISO 12925-1:1996 (type CKC)

Compatibility

ANDEROL[®] synthetic hydrocarbon based lubricants are similar to mineral oils in their compatibility with paints, seals, gaskets and hoses. The ANDEROL[®] 5000 PLUS series meets or exceeds the SBR-NBR28 seal requirements of the DIN 51517-3 specification.

Packaging

ANDEROL[®] 5000 Plus products are available in 5-gallon pails and 55-gallon drums. Other packages may be available upon request.

Typical Property	Test Method	ANDEROL® 5220 Plus	ANDEROL® 5320 Plus	ANDEROL® 5460 Plus	ANDEROL® 5680 Plus
ISO Grade	---	220	320	460	680
AGMA Grade	AGMA 9005-D94	5EP	6EP	7EP	8EP
Viscosity, cSt					
@ 40°C	ASTM D445	225	330	468	694
@ 100°C	ASTM D445	26	35	47	65
Viscosity Index	ASTM D2270	150	153	159	166
Pour Point, °C	ASTM D97	-42	-42	-39	-39
Flash Point, °C	ASTM D92	244	246	250	262
Density @15.6°C (60°F)	ASTM D1250	0.86	0.86	0.86	0.86
Acid number, mg KOH/g	ASTM D664	0.7	0.7	0.7	0.7
Foam Seq I,II,III (ml/ml)	ASTM D892	0/0, 15/0, 0/0	0/0, 0/0, 0/0	0/0, 0/0, 0/0	0/0, 0/0, 0/0
Copper Corrosion	ASTM D130	1b	1b	1b	1b
Steel Corrosion	ASTM D665A/B	Pass	Pass	Pass	Pass
Oxidation, % KV100 change	ASTM D2893	1.34	1.57	1.51	1.71
Timken OK Load, lb	ASTM D2782	100	100	100	100
4-Ball Wear, mm	ASTM D4172	0.33	0.34	0.31	0.35
4-Ball EP	ASTM D2783				
Load Wear Index, kgf		56	65	77	65
Weld Point, kg		250	250	250	250
Demulsibility at 82°C, mL oil/ water/emulsion (min)	ASTM D1401	43/37/0 (25)	40/40/0 (25)	43/37/0 (30)	42/38/0 (55)
Shear Stability at 30 cycles, %viscosity loss	ASTM D7109	2.97	4.11	18.76	-
Shear Stability at 90 cycles, %viscosity loss		1.77	1.29	5.44	-
FAG FE8, roller bearing wear	DIN 51819-3				
weight loss Rollers, mg				4	
weight loss Cage, mg				29	
FZG A/8.3/90, pass load stage	DIN 51354			≥14	
FZG A/16.6/90, pass load stage	DIN 51354			≥14	
Micropitting resistance	FVA 54/7			High	

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