PETRONAS GEAR SYN PAO SERIES

Premium Performance Synthetic (PAO) Industrial Gear Oil

PETRONAS Gear Syn PAO Series are premium performance industrial gear oils specially developed for various types of enclosed gear drives operating under normal to extremely heavy duty conditions.
Formulated with high viscosity index synthetic base oil (PAO) enhanced with advanced extreme pressure, anti-oxidant, anti-rust and anti-foam additives, PETRONAS Gear Syn PAO oils provide excellent extreme pressure, anti-wear and micropitting protection, energy saving, reduced bulk oil temperatures, smooth operation of the gear drives and up to 3x longer lasting performance vs conventional mineral gear oils.

PETRONAS Gear Syn PAO Series meets or exceeds key industrial specifications.

Applications

PETRONAS Gear Syn PAO Series are recommended for use in:

- various types of enclosed industrial gears (spur/helical/bevel/planetary) with circulation or splash lubrication systems operating at bulk oil temperature up to 200°C
- gear drives subjected to high variations in operating and/or ambient temperatures, including cold start-ups
- gears drives subjected to extremely heavy loads
- gear drives sensitive to sludge formation
- non-gear applications include shaft couplings, ball roller and other types of anti-friction bearings

Note: They are not recommended for worm gears due to compatibility concerns of sulfur/phosphorus additives with bronze metallurgy. Industrial gear lubricants as a class are not formulated for some types of heavily loaded hypoid gearing. In these cases automotive type gear lubricants offer better protection.

PETRONAS Gear Syn PAO Series are compatible and could be mixed with conventional mineral gear oil.

Technical Data Sheet
Revision Date: 09.03.2020 Rev. 06

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Features and Benefits

Features	Benefits
Excellent micropitting resistance	Helps to extend gear and bearing life in gear drives operating under severely loaded conditions
Low temperature protection	Ensures proper protection of equipment components during cold starts
High viscosity index	Ensures superior performance and protection over a wide temperature range
Excellent extreme pressure protection	Excellent extreme pressure performance giving long gear life in sever loaded gear drives
Excellent anti-wear protection	Protects equipment components from excessive wear and provides longer equipment life
Excellent thermal and oxidation stability	Maintains performance levels under high temperatures and pressure, enabling long oil drain intervals
Excellent resistance to sludging	Excellent cleanliness for sludge free gear drives
Excellent rust & corrosion protection	Inhibits the corrosion process that occurs in presence of water, improving equipment life
Excellent water separability	Due to excellent water separability the system are protected from water degenerative effects, maintaining gear drives efficiency at required level and reducing maintenance costs
Excellent multi metal compatibility	Compatible with most metal alloys ensuring trouble free performance of the system
Very good seal and elastomer compatibility	Compatible with most seals and elastomers, which prevents oil leaks and contamination due to seal erosion

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Typical Properties

Characteristic	Method	Specification	150	220	320	460	680
Specific Gravity @15°C	ASTM D 4052	Report	0,850	0,860	0,860	0,864	0,866
Kinematic Viscosity @40°C, cSt	ASTM D 445	±10%	150	220	320	460	680
Kinematic Viscosity @100°C, cSt	ASTM D 445	(1)	19,6	25,8	34,6	46,8	65,0
Viscosity Index	ISO 2909	**	150	149	153	159	167
Flash Point, °C	ASTM D 92	Min. 200	250	252	258	262	262
Pour Point, max °C	ASTM D 97	**	-48	-45	-42	-40	-39
Water Separability, 40/37/3 – mins	ASTM D 1401	**	10	10	20	20	25
Copper Strip Corrosion, Visual	ASTM D130	Max. 1	1b	1b	1a	1b	1b
Foam Sequence I, mL	ASTM D892	Max. 100/10	10/0	0/0	0/0	0/0	0/0
Foam Sequence II, mL		Max. 100/10	60/0	0/0	0/0	0/0	0/0
Foam Sequence III, mL		Max. 100/10	0/0	0/0	0/0	0/0	0/0
Weld Load, Kgf	ASTM D2783	(1)	250	250	250	250	250
FZG, Stages Passed	ISO 14635-1	Min. 12	>12	>12	>12	>12	>12
FZG Micropitting resistance (90°C)	FVA-54	≥10 High	Pass	Pass	Pass	Pass	Pass

All technical data are provided for reference only and all specification based on DIN 51517-3 and ISO 12925-1
**Individual limits accordingly with each viscosity grade / (1): not required in specification / SS is available upon request including quality control limits

Performance Levels

- AGMA 9005-E02
- Cincinnati Machine P-74
- David Brown S1.53.106
- DIN 51517 Part III
- GED50E35
- HANSEN (ISO VG220 to 680)
- RENK ZAN 36011 (ISO VG150 to 460)
- Siemens MD Approval for Flender Gear drives - Revision 15 T 7300 Table A-c
- U.S. Steel 224

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Health, Safety and Environment

This product is unlikely to present any significant health and safety hazards when used in the recommended application. Avoid contact with skin. Wash immediately with soap and water after skin contact. Do not discharge into drains, soil or water.

For further detail regarding storage, safe handling, and disposal of product, please refer to product SDS or contact us at: www.pli-petronas.com.

Important Note

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