



Lubricant's That Delivers Performance

# GENERATION FOUR ENGITECH LTD.

## Hi-TECH SYN GEAR OIL PAO Series SHC-PAO Base High-End Gear and Bearing oil

Available in Grades 32,46,68,  
100,150,220,320,460,680,1000



Superior Quality Additive with  
Polyalphaolephines ( PAO ) Base Oil

Provide Operation Benefit with  
long term wear protection

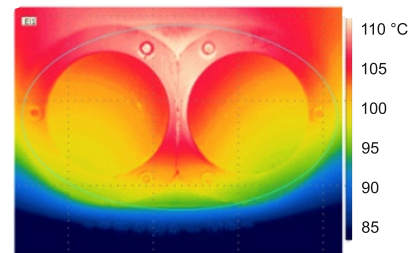


# Hi-Tech SYN Gear Oil PAO Series

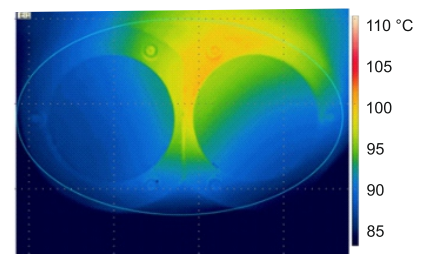
## Product Description

Hi-Tech SYN Gear oil PAO series, is a premium performance, SHC, Extreme Pressure gear lubricant is recommended for enclosed industrial gearboxes, requiring Extreme pressure, especially those running continuously at temperatures up to 107°C or exposed to very cold temperatures as low as -46°C. They are also recommended for those applicable gearboxes under severe service conditions, such as heavy loads or low speeds. These products also provide excellent protection for bearings operating under similar conditions and where EP is required.

Hi-Tech SYN Gear oil PAO series provide very high shear stability even under heavily loaded, high speed conditions, in industrial gears. The unique property of the synthetic base oil is a low traction coefficient, resulting in improved gear efficiency, energy savings, less friction, less wear and consequently providing lower operating temperatures, good demulsifying qualities compared to conventional mineral oil products. Hi-Tech SYN Gear oil PAO series also provide opportunity to extend drain intervals from the synthetic hydrocarbon base oil's outstanding oxidation and thermal stability. It is compatible with most mineral oil based industrial EP/R&O gear lubricants, as well as with most other PAO based gear oil.



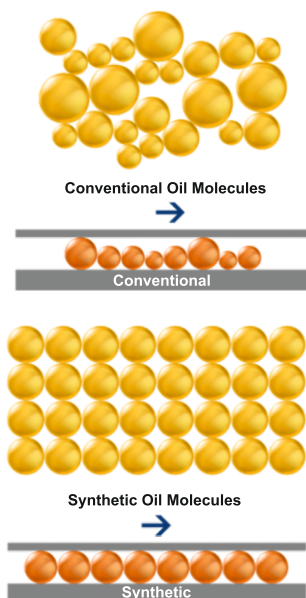
Thermal Camera showing mineral oil Base Gear oil generate more heat while operating.



Hi-Tech SYN Gear Oil generate less heat while operating and provide operating benefits.

## Formulation Benefits

Hi-Tech SYN Gear oil PAO series, Extreme Pressure gear lubricant is formulated for heavily loaded enclosed gear drives and bearing in industrial applications. The extreme pressure additive package and synthetic base oil combine to maximize wear resistance, including micropitting, which is particularly important for remote, hard to get to, elevated gear. The formulation additionally provides both high and low temperature protection by maintaining viscosity parameters and is non-corrosive to steel, copper, bronze, babbitt and nickel cadmium. It has a high level of rust protection and oxidation stability rounding out its capability to handle severe application and potential for extended drains. Hi-Tech SYN Gear oil PAO series, are formulated with a unique extreme pressure additive using and which provides film strength up to four times that of typical sulfur phosphorus, mineral based, gear oils. The combined base oil and unique additive package provide excellent anti-wear properties yielding exceptional gear protection even in the presence of small amounts of water and shock load condition.



A proper film at micro level is generated by its molecular structure, achieving equal structure is not possible with mineral oil and PAO base purpose orient Synthetic oil provide excellent oil film so using Hi-Tech Syn Gear oil has 100's of advantage under operation.

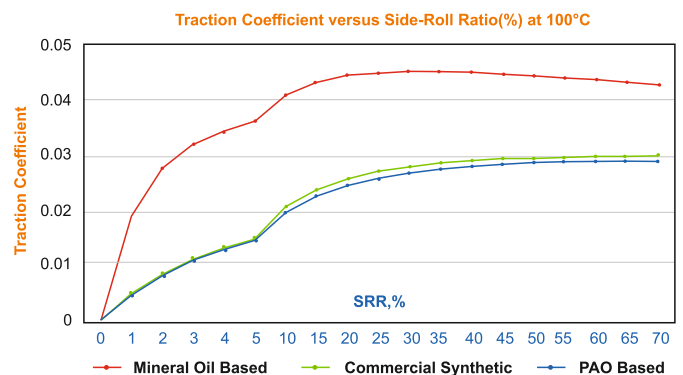
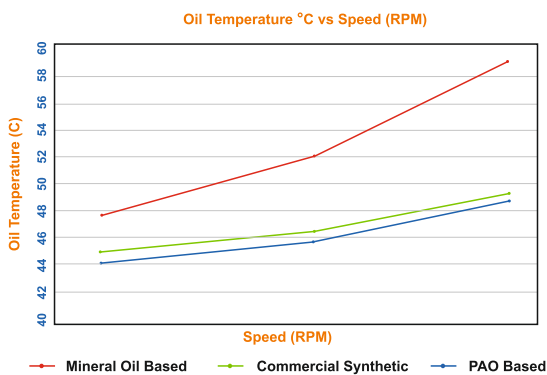
# Hi-Tech SYN Gear Oil PAO Series

## Application

Hi-Tech SYN Gear oil PAO series, is successfully used for a variety of industrial gears, including spur, bevel, helical, worm and industrial hypoid gear cases on mobile contractor type equipment. It is recommended for open pit and underground mining equipment, cement mills, ball mills, rolling mills, crushers, shakers, hoists, conveyors, kilns, winches, machine tools, skip lines and marine equipment in Gear box and Bearing lubrication

## Meets the requirements of:

- AGMA 9005 and qualify as AGMA EP Gear lubricants
- DIN 51517-3 (CLP)
- JoyTO-SMEP (ISO 220) and TO-SHEP (ISO 320)
- U.S. Steel 224
- MAG Cincinnati, Cincinnati Machine P-35 (ISO 460), P-59 (ISO 320), P-74 (ISO 220), P-77 (ISO 150).



Lower the Traction Coefficient better the use of power, PAO base Hitech SYN gear oil is much better than any high end mineral oil base gear oil

Under friction higher heat generation always lower the performance and life of lubricating oil. Crystal clear performance benefit of using SCH PAO base Hitech SYN Gear oil

## Features & benefits

- |   |   |    |  |
|---|---|----|--|
| 1 | Exceptional thermal and oxidation stability   | 2  | Excellent seal compatibility                         |
| 3 | Extended drain capabilities                   | 4  | Excellent wear protection under the high-temperature |
| 5 | Outstanding anti-foam protection              | 6  | Made with synthetic base stocks                      |
| 7 | Broad operating temperature ranges            | 8  | Protection durability as defined by ASTM L37         |
| 9 | High resistance against micro pitting fatigue | 10 | High viscosity index and low pour point              |

# Hi-Tech

## SYN Gear Oil PAO Series

### Specification and Typical Parameter

ISO Viscosity Grade	32	46	68	100	150	220	320	460	680	1000
Density, DIN 51757, kg/m <sup>3</sup>	835	840	841	844	848	856	857	860	866	867
Viscosity, ASTM D 7042										
mm <sup>2</sup> /s @ 40°C	33	47	70	100	155	223	322	463	680	998
mm <sup>2</sup> /s @ 100°C	6.2	8.2	11.8	16	23	31	41	54	76	98
Viscosity Index, DIN ISO 2909	139	149	165	172	178	182	182	183	193	190
Flash Point, DIN EN ISO 2592, COC, °C min.	248	248	248	254	260	260	260	260	260	262
Pour Point, ASTM D 7346, °C max.	-55	-53	-51	-50	-50	-48	-48	-48	-40	-38
Corrosion Protection on Steel, DIN ISO 7120	Passed									
Corrosivity on copper, DIN ISO 2160, @ 100 °C, 3h	1									
Demulsifying ability, DIN ISO 6614, min.	<18									
FZG test A/8,3/90, ISO 14635-1, load storage	>14									
Foaming Characteristics, ASTM D 892										
@ 24 °C, ml / ml	0/0									
@ 93.5 °C ml / ml	0/0									
@ 24.5 C after 93.5 °C ml / ml	0/0									
Foam and air separation, ISO 12152										
Vol. Increase 1 Min. 1 %	<15									
Oil-Air Mixture, 5 Min. 1 %	<10									
Four-Ball Extreme Pressure Test, Load Wear Index, kgf ASTM D 2783	>53									
Four-Ball Extreme Pressure Test, Well Load, kgf ASTM D 2783	>255									
Rust Test, Procedure A&B, ASTM D 665	Passed									



The data given in this product sheet represent our current level of knowledge and experience. Due to the various specific application they do, however, not discharge the user from his own examination. The information provided herein may not be used to derive a legally binding warranty of specific properties or the suitability for a certain purpose of application. Detailed security-concerning and toxicological data as well as security instructions for each product can be taken from the corresponding Material Safety Data Sheets (MSDS). High-performance lubricants from Hi-Tech Solution are under continuous development. Therefore, Generation four Engitech Ltd. keeps the right to change technical data in this product data sheet without notification. In case of doubt, please do not hesitate to contact our customers' advisory service.





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