



### Durasyn<sup>®</sup> mPAOs – The solution for your wind turbine gear oil formulation

The global commitment towards renewable energy is stronger than ever and climate change plans like the European Green Deal Industrial Plan, the USA's Inflation Reduction Act and China's 14th Five-Year Plan are great examples of this push towards renewable energy.

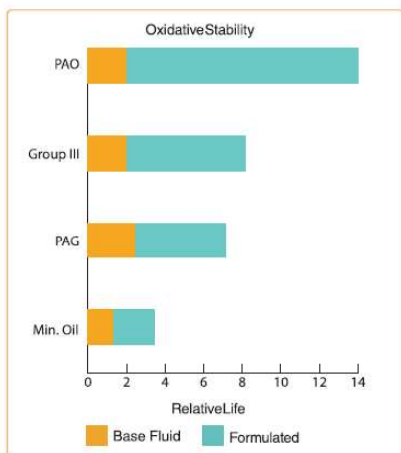
The wind turbine market is projected to show an astonishing double-digit growth rate in the coming years, and we will reach 2TW of installed wind energy by the end of 2030!<sup>1</sup>

INEOS Oligomers has a wide range of specialized metallocene-based PAOs precisely manufactured for formulators to design lubricants that meet the challenging and severe requirements of future main gear oil formulations.

### INEOS Oligomers Durasyn<sup>®</sup> mPAOs offer following benefits:

#### High oxidative and thermal stability

Compared to other base oils, PAO has better oxidative stability when appropriate antioxidants are used. Thanks to the low amount of tertiary hydrogen atoms, INEOS PAOs show increased stability compared to conventional mineral base oils.



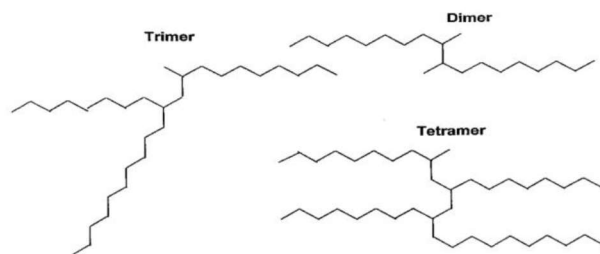
#### Designed to be highly shear stable

PAOs are more shear stable than other types of base oils, which is crucial to develop the high performing gear oils used in wind turbine gearboxes.

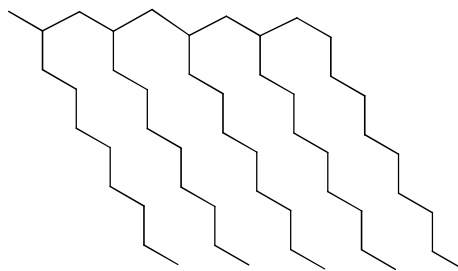
Due to their comb-like chemical structure, our metallocene based high viscosity PAOs offer improved shear stability compared to conventional high viscosity PAOs and thus offer longer service life.

	Durasyn <sup>®</sup> 180R (mPAO100)	Conventional PAO100
KV @100°C (mm <sup>2</sup> /s): Before	102.0	102.1
KV @100°C (mm <sup>2</sup> /s): After	100.6	99.65
Change (%)	1.4	2.4

Table 1: KRL 20 test



Structure conventional PAO



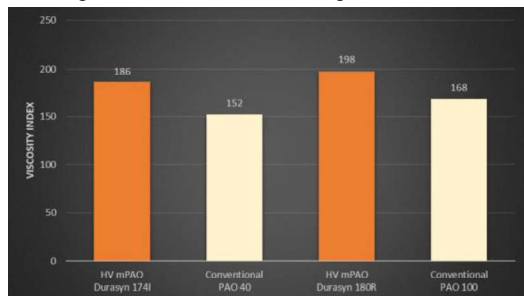
Structure metallocene PAO

<sup>1</sup> GWEC – Global wind report 2023



### High viscosity indexes and wide operating temperature range

INEOS mPAOs offer a much wider operating temperature range compared to conventional PAO-based gear oils thanks to their higher VI.



Furthermore, low-temperature flow characteristics are improved, which enables a smooth start-up.

**Besides the above mentioned properties our mPAOs will also offer you:**

- ✓ **Excellent air release**
- ✓ **Enhanced micropitting resistance**
- ✓ **Excellent demulsibility properties**
- ✓ **Engineered inherent low volatility**

### Low foaming tendency

Low foaming is essential to make sure your gear oil performs as designed. Our metallocene PAOs have extremely low foaming tendency and outperform conventional PAOs which are already known for their low foaming tendency.

Foaming tendency (ASTM D892)	Durasyn 174I	Conv. PAO 40	Durasyn 180R	Conv. PAO 100
Sequence I	0	5	0	10
Sequence II	0	0	0	0
Sequence III	0	5	0	5

### Typical Durasyn<sup>®</sup> PAO Properties

Property	Method	Unit	174I	176	180R	180I	185
Kinematic Viscosity @ 100°C	ASTM D445	mm <sup>2</sup> /s	50	65	98	135	170
Kinematic Viscosity @ 40°C	ASTM D445	mm <sup>2</sup> /s	411	555	928	1250	1627
Viscosity index	ASTM D2270		186	189	198	216	225
Flash point COC	ASTM D92	°C	286	280	290	290	274
Pour point	ASTM D97	°C	-47	-45	-40	-37	-39

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