



## Optigear Synthetic PD Range

High Performance Synthetic Gear Oil

### Description

Castrol Optigear™ Synthetic PD is based on synthetic hydrocarbons with Castrol's advanced gear oil system which gives special plastic deformation (PD) and surface improvement performance.

The additive package, when activated by high specific loads and corresponding temperatures, helps to equalize surface roughness without creating abrasion leading to the surface improvement (plastic deformation).

Optigear Synthetic PD is a CLP-HC gear oil (according to DIN 51502) and exceeds the minimum requirements according to DIN 51517, part 3, CLP gear oils and is formulated with detergent type additives.

### Application

Optigear Synthetic PD may be used in spur gear, bevel gears or planetary gear units and in heavy loaded gear units. It is also suitable for the lubrication of oil-lubricated rolling bearings.

It is especially designed to reduce friction losses and will reduce energy consumption compared to more conventional lubricants.

Being synthetic based it will also withstand higher temperatures and provide extended life.

Depending on the specific application, Optigear Synthetic PD may be used in an operating temperature range from -35 °C to +95 °C.

The beneficial effects of the special PD additives contained in Optigear Synthetic PD will be reduced if mixed with other lubricants. If mixing with other oils cannot be avoided, contact our local technical support team for advice on compatibility. (As a guide at least <<3% of other oils is preferred). To achieve an optimum lifetime of your elastomer seals we recommend the use of Viton (FKM) based materials.

### Advantages

- High load carrying capacity
- Superior micro pitting protection
- Excellent friction reduction
- Good filtration properties
- Excellent bearing lubrication suitability
- Long life lubricant

# Typical Characteristics

Name	Method	Units	PD 68	PD 150	PD 220	PD 320	PD 460	PD 680
Appearance	Visual	-	clear, yellow/ brown	clear, yellow/ brown	clear, yellow/ brown	clear, yellow/ brown	clear, yellow/ brown	clear, yellow/ brown
Density at 15°C / 59°F	ISO 12185 ASTM D4052	kg/m <sup>3</sup>	0.843	0.848	0.850	0.852	0.856	0.860
Kinematic Viscosity at 40°C / 104°F	ISO 3104 ASTM D445	mm <sup>2</sup> /s	68	150	220	320	460	680
Kinematic Viscosity at 100°C / 212°F	ISO 3104 ASTM D445	mm <sup>2</sup> /s	10.8	21.1	29.1	40.4	52.2	68.5
Viscosity Index	ISO 2909 ASTM D2270	-	149	165	172	180	178	176
Copper corrosion 24 h, 100°C/212°F	ISO 2160 ASTM D130	Rating	1	1	1	1	1	1
Pour Point	ISO 3016 ASTM D97	°C/°F	<-51/<-60	-51/-60	-48/-54	-45/-49	-42/-44	-39/-38
Flash Point - open cup method	ISO 2592 ASTM D92	°C/°F	>240/>464	>250/>482	>250/>482	>250/>482	250/482	>240/464
Rust test - distilled water (24 hrs)	ISO 7120 ASTM D665A	-	Pass	Pass	Pass	Pass	Pass	Pass
Aging behaviour at 95°C/203°F, 312 h Change in Viscosity @ 100°C/212°F Precipitation number	ISO 4263-4	% -	<2 none	<2 none	<2 none	<2 none	<2 none	<2 none
Elastomer compatibility SRE-NBR 28 168 h, 100°C/212°F	ISO 1817	-	Pass	Pass	Pass	Pass	Pass	Pass
FZG Gear Scuffing test - A/8.3/90	ISO 14635-1	Failure Load Stage	>12	>12	-	>14	-	-
FZG Micropitting test, 60°C/140°F	FVA 54-7	Failure Load Stage, Micropitting Rating	-	-	-	>10 High	-	-
FZG Micropitting test, 90°C/194°F	FVA 54-7	Failure Load Stage, Micropitting Rating	-	-	-	>10 High	-	-
FE8 Bearing Wear test (F.562831.01-7.5/80-80)	DIN 51819-3	Roller wear (Mw50)	1.5 mg	<1 mg	-	-	-	-
FE8 Bearing Wear test with increased load (F.562831.01-7.5/100-80)	DIN 51819-3 (modified)	Roller wear (Mw50)	-	-	-	2 mg	-	-
FE8 Bearing Fatigue test (F.562831-75/100-70 800 hrs)	DIN 51819-3 (modified)	Roller wear (Mw50)	-	<1 mg	-	<1 mg	-	-

Subject to usual manufacturing tolerances.

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