



## PRODUCT INFORMATION & DATA SHEET

# PRINCE® D1 GOLD SAE 5W-40

The Signature P-12 Ester Based Heavy-Duty Engine Oil.

One-of-a-kind low SAPS fully synthetic diesel engine oil engineered with high polarity P-12 Ester technology and low ash additives for the current EURO 6 exhaust-optimized turbodiesel engines with modern exhaust gas recirculation (EGR) and emission after-treatment systems. This engine oil even exceeds the performance requirements of API CK-4 and achieved superiority compared to CJ-4 in key performance aspects including: adhesive wear and scuff protection, aeration and foam control, thermal-oxidative stability, shear stability, piston deposits and soot control, as well as fuel economy level. This engine oil provides superior capabilities to support extended drain interval that has been demanded lately from major OEMs, which can help reduce maintenance costs for operators and contribute to protect the environment.

This superior engine oil complies with EURO VI regulations ensuring the maximum functionality and durability of the diesel particulate filter (DPF), diesel oxidation catalysts (DOC) and selective catalytic reduction (SCR) systems. It has been fortified with the latest detergency, dispersancy and soot-removing active agents to clean and eliminate the formation of carbon and varnish deposits and sludge on the EGR valves and to prevent operation failure of EGR as well as DPF clogging, thereby ensuring a maximum trucking performance.

This motor oil complies with the following industry specifications:

API CK-4/SN, ACEA E7/E9, Caterpillar ECF-3, Cummins CES 20086, Daimler MB 228.51/228.52, DDC DFS 93K222, Deutz DQC IV-18 LA, MACK EOS-4.5, MTU Type 3.1, Renault VI RLD-4, Scania LDF-4, Volvo VDS-4.5

benefits of D1 GOLD with P-12 Ester Technology:

- P-12 Ester offers the highest compatibility with Group III synthetic base stock to enhance energy and fuel efficiency through better lubricity, reduce volatility and thermal-related breakdown, as well as offering higher effectiveness in solubilize additives.
- P-12 Ester can be confidently chosen for its ability to support long drain intervals due to the excellent natural advantageous properties of esters including the maximum levels of lubricating film strength, ageing and oxidation resistance, shear stability and viscosity stability.
- P-12 Ester features low ash content and clean-burning performances to help minimize varnish deposits and soot contamination in emission reduction systems including DPF and SCR, ensuring their operational effectiveness and longevity.
- Formidable and robust protective film of P-12 Ester molecules acts as a lubricating barrier that separates metal surfaces from harsh direct contact, reducing friction, abrasive wear and scuff, especially in critical engine components subjected to high-torque and heavy pressure trucking conditions.
- High thermally stable characteristics withstand higher temperatures without breaking down and degrade when engine temperature levels reached extreme situations to help maintain viscosity and lubricating properties for a consistent engine protection.
- Outstanding antioxidants and soot-handle contribute to long-term cleanliness, stability and effectiveness of the oil film in protecting heavily loaded engine against soot particles, carbon and varnish deposits, and sludge formation in vital components.

- Low volatility (burn-off) rate when the operating temperature rises, P-12 Ester is stable to the evaporation and thence a very low rate of evaporation loss, evidenced for higher flash and smoke point and lower oil consumption.
- Low pour point protects the latest turbochargers against oil starvation in subzero temperatures and offers a quick return to appropriate oil pressure level after starting up.

## Areas of application

Designed for regular and extended drain intervals in natural aspirated and forced induction turbocharged and supercharged, common-rail injection (CRI) with electronic diesel control (EDC), direct injection (DI) and indirect injection (IDI) diesel engines in passenger cars, SUVs, light-duty and heavy-duty trucks and off-highway working machines complied with up to EURO VI emission regulations, require using a motor oil with the latest API CK-4 specification. The API CK-4 is completely backward compatible.

Initially for high-torque/high-speed on-highway EURO VI and EURO V turbodiesel engines using low sulfur diesel fuel. However, it is also recommended for EURO II, III, IV on-highway and off-highway diesel engines using diesel fuel with high sulfur content. Applicable also in gasoline and liquefied petroleum gas (LPG) powered vehicles requiring a motor oil with up to API SN performance level.

## Service recommendation

Follow the oil drain interval required by the respective manufacturers. Observe the owner's manual booklet. Recommend to flush before add in new oil. Change oil filter at time of oil change.

## Commercially available product compatibility

Our fully synthetic motor oil is compatible with other fully synthetic, synthetic and/or conventional motor oils. Peak performance is guaranteed only upon using alone without mixing with other motor oils. Our motor oil products are designed and developed with appropriate additive package. Hence, aftermarket oil additive products are not recommended for used alongside.

## Typical properties

<b>SAE Viscosity</b>		<b>5W-40</b>
Viscosity Index (VI)	ASTM D2270	173
Viscosity at 100 °C; mm <sup>2</sup> /s	ASTM D445	15
Viscosity at 40 °C; mm <sup>2</sup> /s	ASTM D445	92.5
Density at 15 °C; kg/m <sup>3</sup>	ASTM D4052	855.0
Flash Point; °C	ASTM D92	243
Pour Point; °C	ASTM D97	-44
Total Base Number	ASTM D2896	10
Sulphated ash; wt. %		0.9

The information show herein is subject to change without noticed. The product indicated here have been developed by PRINCE LUBRICANTS for use in the areas of applications shown. We reserve all right to alter the characteristics and product properties to align with continually technical development.