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# Multiservice 4

SAE 10W-30

**Universal synthetic based lubricant for HD (Heavy Duty) Diesel engines, hydraulic systems, hydrostatic transmissions and “Powershift” transmissions of earth moving machinery. Zinc content higher than 900ppm.**

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PAKELO MULTISERVICE 4 SAE 10W-30 is a multigrade lubricant formulated with selected synthetic base stocks developed for Diesel engines of latest generation, that satisfies the recent American API CI-4 and European ACEA E7 specifications.

International OEMs are asked to design low emission engines in order to meet more and more severe American and European standards regarding environmental pollution.

To reduce emissions of Nitrogen Oxides (NOx) it is very often used the **SCR (Selective Catalytic Reduction)** system, with injection of urea into the exhaust gas, and/or the **EGR (Exhaust Gas Recirculation)** system.

However with this system leads to an increase of the soot produced (and also of engine wear) and very often to the use of particulate traps as **DPF (Diesel Particulate Filter)**.

API CI-4 / ACEA E7 lubricants used in engines with EGR enable to have the same protection and reliability as in engines without EGR.

That means, when using API CI-4 / ACEA E7 lubricants for engines without EGR valve, there is higher protection if compared to lubricants that have not been studied for this application. This guarantees longer life and cleanliness of engine.

The specific engine additive package used for PAKELO MULTISERVICE 4 SAE 10W-30 guarantees also high performance in hydraulic systems, hydrostatic and Powershift transmissions of earth moving machines.

The particular formula of PAKELO MULTISERVICE 4 SAE 10W-30 thus provides the following properties:

- **good low temperature properties;**
- **excellent dispersant properties** that guarantee a great control of sludge and oil thickening also in case of high presence of soot and deposits;
- **very high detergent properties** that guarantee cleanliness performance and long drain intervals;
- **low formation of lacquers and varnishes that form at low temperatures** specially during “stop-and-go” service;
- **high thermal-oxidative stability;**
- **excellent wear control;**
- **anti-corrosive properties** to guarantee protection from combustion acid products and moisture caused by combustion and ambient;
- **anti-foam properties** to reduce or to remove discontinuity of lubricant film caused by excessive formation of inner foam;
- **good compatibility** with gaskets;
- **excellent pumpability** at low temperatures of used oil too, to guarantee the presence of the lubricant for all the engine moving parts right from the first working periods.

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## Application fields

PAKELO MULTISERVICE 4 SAE 10W-30 is recommended for engines, hydraulic systems, hydrostatic, Powershift and automatic transmissions of earth moving machinery.

Take always into consideration correct oil drain intervals to obtain maximum engine life.

Since PAKELO MULTISERVICE 4 SAE 10W-30 satisfies also API SL (American Specifications for light Diesel and gasoline engines), it can also be used for mixed vehicle fleets.

## Performance levels

**ACEA E7, API CI-4, API SL, Global DHD-1, MB 228.3 (v2012.2), MAN M3275, Volvo VDS-3, Renault Trucks RLD-2, MTU Type 2, Mack EO-N / EO-M Plus, Caterpillar ECF-2, Cummins CES 20.078, Cummins CES 20.077, Deutz DQC III-10.**

## Chemical-Physical Characteristics

Multiservice 4	Method analysis	Unit measure	Value SAE 10W-30
Density at 15°C	ASTM D1298	kg/l	0,877
Kinematic Viscosity at 40°C	ASTM D445	cSt	77,1
Kinematic Viscosity at 100°C	ASTM D445	cSt	11,7
Viscosity Index	ASTM D2270	-	145
C.C.S. Viscosity at -25°C	ASTM D5293	cP	6.800
HT-HS Viscosity at 150°C / 10 <sup>6</sup> s <sup>-1</sup>	ASTM D4683	cP	3,55
T.B.N. (Total Base Number)	ASTM D2896	mg(KOH)/g	10,7
Sulphated Ash	ASTM D874	% (w/w)	1,40
Flash Point (C.O.C.)	ASTM D92	°C	210
Pour Point	ASTM D97	°C	-36
Noack evaporability test	ASTM D5800	% (w/w)	12,2

The data just above refer to average values and must not be understood as guaranteed characteristics.

This Technical Data Sheet has been carefully checked to guarantee complete and precise information. However, we do not take any responsibility in case of damages caused by any mistakes or omissions. Due to continual product research and development, the information contained herein is subject to change without notification.