



# Makina Grease & Lubricants Manufacturing L.L.C.

## Ultra HD

### Description

Makinalube Ultra HD, is a high-quality multi-grade SHPD oil developed to meet the latest severe requirements of the API Engine Service Classification CG-4/SF. It also meets MB 229.1, 228.3 and 228.1, MAN 271 and Volvo VDS-2 for extended drain periods. Makinalube Ultra HD provides superior performance and longer drains capabilities in high output turbocharged diesel engines operating under the severest service conditions.

Makinalube Ultra HD is blended from highly refined base stocks and selected additives to provide excellent detergency, dispersancy and anti-wear properties. The base number of 12 provides the necessary reserve alkalinity to protect vital engine parts against corrosion and premature engine wear.

Additional quality features are:

- Reduced piston deposits
- Protection against cylinder bore polishing
- Reduced oil consumption
- Reduced filter plugging
- Less oil oxidation and thickening
- Neutralizes corrosive acids

### Application

Makinalube Ultra HD meets API CG-4/SF and the requirements of most high-speed diesel engines produced around the world. This high quality multi-grade motor oil meets or exceeds the requirements of:

- API CG-4/SF
- ACEA A3-98, B3-98, E3-98
- MERCEDES BENZ 229.1, 228.3, 228.1
- MAN 271

Makinalube Ultra HD is highly recommended for use in most high-speed diesel engines. The multi-grade motor oil has a proven advantage of an increased reduction in piston deposits, cylinder wear, oil consumption and oil thickening in major original equipment manufacturer (OEM) tests. Super High Performance Diesel engine oil - SHPD - is recommended by OEMs such as Mercedes Benz, MAN, Volvo, Caterpillar and others for use at longer drain intervals than conventional high quality diesel engine oils.

Makinalube Ultra HD 15W40 may be used for engines running on diesel fuel containing up to 1.2% sulphur for Direct Injection engines and 0.6% sulphur for Pre-combustion Chamber engines. Makinalube Ultra HD 15W40 is recommended for use in many climates with temperatures as low as -20°C.



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## Typical Characteristics

PROPERTIES	UNITS	TEST METHOD	VALUE				
SAE Grade		DIN 51 511	15W-40	20W-50	15W-50	20W-60	20W-40
Density @ 15 °C	kg/m <sup>3</sup>	ASTM D-4052	888	891	879	893	888
Viscosity @ - 15 °C	mPa.s	ASTM D-5293	-----	7000	-----	7000	8000
Viscosity @ - 20 °C	mPa.s	ASTM D-5293	6000	-----	6000	-----	-----
Viscosity @ 100 °C	mm <sup>2</sup> /s	ASTM D-445	15.4	18.1	18.8	23.5	15.4
Viscosity Index		ASTM D-2270	133	135	147	139	110
Flash Point, COC	°C	ASTM D-92	240	236	238	230	230
Pour Point	°C	ASTM D-97	- 24	-21	-27	-21	-21
Sulphated Ash	% wt.	ASTM D-874	1.59	1.59	1.59	1.59	1.59
Base Number	mg KOH/g	ASTM D-2896	12	12	12	12	12