

Date: 16 June 2014

TECHNICAL SHEET
ALL SEASON UNIVERSAL ENGINE OIL
LUKOIL AVANTGARDE ULTRA SAE 10W-40, API CI-4/SL

- LUKOIL AVANTGARDE ULTRA SAE 10W-40, API CI-4 / SL, semisynthetic oil, is obtained from isoparaffinic components with a very high viscosity index (Group III), refined mineral oils (Group I) and specific multi-purpose additives, which provide the API CI-4/SL performance level.
- It is mainly designed for the lubrication of modern supercharged high speed 4 stroke compression ignition (Diesel) engines, with severe operating conditions (Euro I, II, III, IV, V), equipped with exhaust gas recirculation (EGR) system, manufactured since 2002, but also for supercharged spark ignition (gasoline) engines, manufactured since 2001. It provides the proper operation of the engines equipped with exhaust gas recirculation (EGR) system and NOx selective catalytic reduction (NOx SCR) system. It also provides maximum engine protection against wear, corrosion and deposit formation at high temperatures; it saves fuel and reduces the noise.
- Performance level: ACEA E7-08; A3/B4-04; API CI-4 / SL
- Approvals: KAMAZ; YaMZ
- Meets the following requirements: MAN M 3275; MB 228.3; Volvo VDS-3; Renault RLD-2/RLD; Cummins CES 20071/2/6/7/8; MTU Category 2; Caterpillar ECF-1-a / ECF 2; Global DHD-1; Mack EO-M Plus
- Quality conditions:

Item No.	CHARACTERISTICS	ADMISSIBILITY CONDITIONS	TEST METHOD
1	Kinematic viscosity at 100°C, mm ² s ⁻¹ (cSt)	13.5...16.3	SR EN ISO 3104/AC ASTM D 445 ASTM D 7042
2	Viscosity index, min.	120	SR ISO 2909 ASTM D 2270 ASTM D 7042
3	Base number, mg KOH/g, min.	9.0	SR ISO 3771 ASTM D 2896
4	Flash point, open cup, °C, min.	200	SR EN ISO 2592 ASTM D 92
5	*Apparent (dynamic) viscosity, determined using a Cold Cranking Simulator (CCS) at -25°C, cP, max.	7000	ASTM D 5293
6	* Apparent (dynamic) viscosity, determined using a Mini-Rotary Viscometer (MRV), at -30°C, cP, max.	60000	ASTM D 4684
7	*Sulphated ash, %, max.	1.5	ASTM D 874
8	Water content, %	nil	SR 13484 ASTM D 95
9	*Substances insoluble in organic solvents, %, max.	0.015	STAS 33
10	Pour point, °C, max.	-35	SR 13552 ASTM D 97
11	*Noack volatility, %, max.	13	STAS 8465 ASTM D 5800
12	*Active element content: Calcium, %	to be reported	STAS 8428
13	Zinc, %		STAS 7717
14	Density at 20°C, Kg/m ³	to be reported	SR EN ISO 3675/C91 ASTM D 1298 ASTM D 7042
15	*Phosphorus content, %, max.	0.13	STAS 7330
16	Foaming properties, ml (tendency – stability), max. - at 24 °C - at 93.5 °C - at 24°C, after determination at 93.5°C	10 – 0 20 – 0 10 – 0	SR ISO 6247+C1 ASTM D 892

* This characteristic is warranted by means of the manufacturing technology / is determined in accordance with the technical standard in force.

- Accuracy evaluation of the test methods from this technical sheet should meet the requirements of Standard SR EN ISO 4259:2007 "Petroleum products – determining and applying the accuracy values regarding the test methods".
- Samples shall be taken in accordance with SR EN ISO 3170:2004/C91:2005 "Liquid petroleum products. Manual sampling".
- Packaging, marking, storage, transport and handling are performed according to the regulations in force (decisions, regulations, etc. specified in the product safety data sheet) and to LUKOIL LUBRICANTS EAST EUROPE S.R.L.'s instructions/internal procedures.
- For details, see the Safety Data Sheet (SDS).
- Storage life is of 5 years from the manufacture date.