



KIREI
CHEMICAL

TECHNICAL DATA SHEET



KATANA MAKURI GEO LA 40 Plus

Semisynthetic gas engine oil



DESCRIPTION

KATANA MakuriGEOLA 40Plus – Low SAPS engine oil, specially designed for use in heavy duty stationary gas engines fueled by natural, associated or biogas (Caterpillar, Jenbacher, Perkins, Wartsila, Deutz, etc.). Suitable for high drain intervals (up to 2900 h according to manufacturer's recommendations).

KATANA Makuri GEO LA 40 Plus is produced on high viscosity index hydrocracked semi-synthetic base oils (Group II) and low ash additive package. Oil has good detergent-dispersant properties, which ensures high engine cleanliness, and thanks to the low content of sulfated ash, sulfur and phosphorus prevents surface ignition and the formation of ash deposits on pistons, valves and combustion chamber. It provides excellent protection against

oxidation, corrosion and nitration, protects the engine against wear.



TECHNICAL ADVANTAGES

40%

Less ash deposits

75%

Higher changing intervals

20%

Wider temperature range

KATANA Makuri GEO LA 40 Plus is produced on semi-synthetic (Group II) base oil and additive package with a reduced content of sulfated ash, sulfur and phosphorus, which guarantees the high cleanliness free of deposits in gas engine and prevents surface ignition.

Due to use of hydrocracked base oils (Group II) and the ashless dispersant additive oil prevents soot and other oxidation products sedimentation. Compared to traditional mineral oil changing intervals can be increased up to 70-80%.

KATANA Makuri GEO LA 40 Plus has an increased viscosity index due to Group II base oils, which provide a wider temperature range. Pour point is on 10-15 degrees lower than competitors.



SPECIFICATIONS

KATANAMakuriGEOLA 40 Plus satisfies the low ash requirements for gas engine oils for following engines: Waukesha, Caterpillar, MAN, MTU, Perkins, Wartsila, Cummins.

KATANAMakuriGEOLA 40 Plus fully satisfies and is recommended to replace following types of gas engine oils: Jenbacher engines, all Type 2 and 3 engines (working on Class B gas); Jenbacher, all engines Type 2 and 3



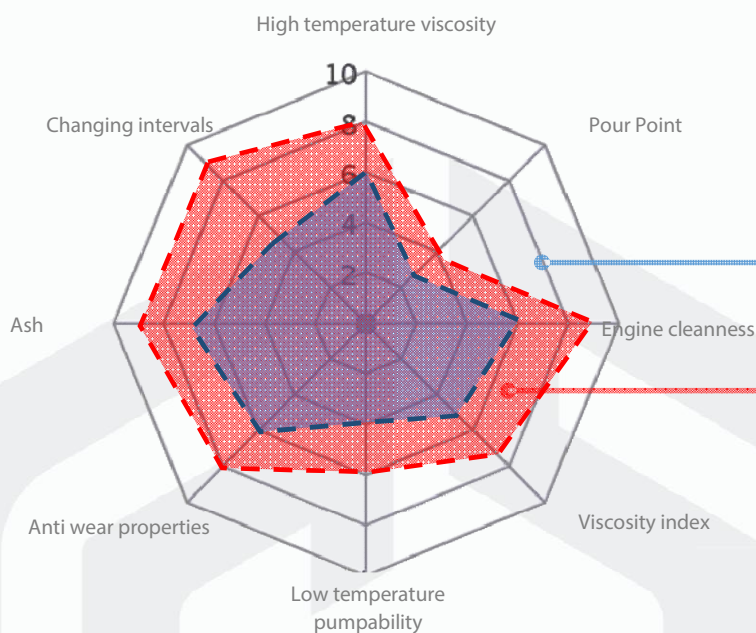
KIREI
CHEMICAL

(working on ClassC gas); Jenbacherengines TypelVversionsAandB; JenbacherenginesTypeVlup to versionE; APICF; MWMGmbH (CaterpillarEnergySolutions) TR0199-99-12105.



TECHNICAL PARAMETERS

Parameter		Test method	TypicalGEO 40 oil	KATANAMakuri GEO LA 40 Plus
Kinematic viscosity at 40°C, cSt		ASTM D445	129.8	129.4
Kinematic viscosity at 100°C, cSt		ASTM D445	13.0	14.3
Viscosity index		ASTM D2270	93	110
TBN, mg KOH/g		ASTM D2896	5.0	5.4
Flash point in open cup, °C		ASTM D92	220	240
Sulfated ash		ASTM D874	0.6	0.45
Pour point, °C		ASTM D97	-10	-27
Zinc content, ppm		-	250	300
Phosphorus content, ppm		-	300	250



Physical and chemical characteristics are typical for this product. These parameters are subject to change without notification, however, full compliance with the product specifications is guaranteed.

Shelf life: 5 years from date of manufacture. Store unopened in a cool, dry, well-ventilated and away from children. Avoid direct sunlight, heat sources and strong oxidizing agents. Material Safety Data Sheet (MSDS) for professional users available on request.

Developed in Osaka, Japan. The quality management system in the production of oils KATANA corresponds to the requirements of ISO 9001. The system of environmental safety in the production of oils KATANA corresponds to the requirements of ISO 14001.