

## Motor oil

### IBIS LA SAE 40

Summer motor oil approved by General Motors – EMD Division. The oil is formulated on the base of selectively refined, solvent dewaxed and hydrorefined oil distillates received from crude oil. The oil contains a package of anti-oxidation and anticorrosion additives improving lubrication as well as washing and dispersing properties.

The oil guarantees excellent lubrication of four-stroke Diesel engines applied in engines of rail machines, other terrestrial stationary machines and marine machines where – on account of their construction – zinc-free motor oil is required.

#### Characteristics:

The oil is mainly used for the lubrication of compression-ignition locomotive engines as well as auxiliary marine and stationary aggregates requiring application of zinc-free oil and working in extreme operation conditions, where this level of quality and viscosity is recommended.

- reduces engine elements wear,
- protects engine against deposits and carbon deposits formation,
- prevents piston rings from blocking,
- guarantees high potential of washing and dispersing,
- very high viscosity of SAE 40 class,
- high potential of dispersing and neutralizing TBN > 13 mgKOH/g,
- removes deposits of carbon black and slurry from lubricated surfaces,
- has high oxidation resistance,
- protection of lubricated surfaces against wear,
- stability of oil viscosity during performance,
- guarantees optimum viscosity for overload engines,
- reduces refills,
- meets the requirements relating to emission of exhaust gases` harmful contents.

No.	Requirements	Research methods by	Unit	Value
1.	Kinematic viscosity at 100 <sup>0</sup> C	ASTM D-445	mm <sup>2</sup> /s	14,4
2.	Pour point	ASTM D-5950	<sup>0</sup> C	- 24
3.	Flash point	PN-EN ISO 2592	<sup>0</sup> C	260
4.	Base number	ASTM D-2896	mgKOH/g	13,9
5.	Viscosity index	ASTM D-2270		100
6.	HTHS dynamic viscosity at 150 <sup>0</sup> C	ASTM D-4741	mPa*s	4,46
7.	Sulphated ash content	ASTM D 874	% m/m	1,5

The above given data are the typical values for a production batch, they are not included in technical specification, and they are subject to change due to continual product research and development.

**Specifications, classifications:**

SAE: 40

API: CF

LMOA -5

**Approvals:**

General Motors – EMD Division

GE

**Packaging:**

180 kg, 1 tonne

**Storage:**

The products should be stored under a roof. If they are stored in the open air where they can be exposed to atmospheric conditions – rains, they should be placed in a horizontal position in order to avoid inrush of water to a container and to prevent label damaging; they should be covered with tarpaulin.

The products should not be stored at the temperature above 60°C and in the places where solar radiation is very strong or – temperatures very low. The expiry date is 3 years if the storage conditions are satisfied.

**Health, industrial safety and the Environment:**

Information concerning safety is included in the product Safety Sheet. It contains detailed information on possible threats, warnings, first aid as well as the impact on the environment and ways of utilization of the used products.

LOTOS Oil SA and the cooperating companies do not take responsibility for misuse of the product or – the use with the violation of the precautions given. Before using the product for other than recommended purposes, seek advice in the local LOTOS Oil SA office.

*The information provided in this data sheet is not intended to constitute an offer within the meaning of the Act of 23<sup>rd</sup> April 1964 - Civil Code. LOTOS Oil S.A. bears no responsibility for whatever effects of use (particularly in trade and investment decision-making) of information contained herein. Any data contained in the MSDS are typical process tolerance values and they are subject to change due to continual product research and development. Information provided in this document may undergo changes. LOTOS Oil S.A. is not responsible for the product availability.*

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