

## Machine oil

### MACHINE OILS ŁMS

Machine oils ŁMS are designed for lubrication of Morgoila type bearings (fluid friction bearings). They are formulated upon highly refined oil bases enriched with a properly selected package of additives.

#### Characteristics:

The oils` formula guarantees:

- optimum protection of the lubricated elements` surfaces,
- high antifoam properties,
- very good demulsifying attributes,
- hydrolytic stability,
- anti-wear protection and a long life of the lubrication systems` elements.

The oils are designed for lubrication of:

- Morgoila type bearings (fluid friction bearings), which operate in large iron-working units during the sheet rolling process,
- circulation systems that require high-viscosity non-emulsifying machine oils,
- mechanical transmissions,
- other systems operating in difficult conditions and requiring high-lubricity oil.

№	Requirements	Research methods by	Unit	Value					
				60 VG 100	80 VG 150	120 VG 220	170 VG 320	240 VG 460	280 VG 550
1.	Kinematic viscosity at 100°C	ASTM D-445	mm <sup>2</sup> /s	11	14	18	23	30	34
2.	Pour point	ASTM D-5950	°C	-9	-9	-6	-6	-6	-6
3.	Flash point	PN-EN ISO 2592	°C	250	260	270	270	270	270
4.	Demulsifying properties	PN-86/C-04065	min	20	20	30	30	30	30
5.	Viscosity index	ASTM D-2270		95	95	95	95	95	95

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

#### Application Recommendations:

ŁMS oils are applied in industrial systems that require machine non-emulsifying oil of improved load-carrying capacity and improved viscosity.

The oil properties guarantee meeting or exceeding the requirements of rolling systems lubrication.

**Specification/ classification:**

ISO VG 100; 150; 220; 320; 460; 550

ISO L-FC; L-CKB

Meets Specification: MORGOIL and MORGAN No-Twist Mill Fluid Specification  
(Morgoil Lubricant Specification SN 180 Part 3)

**Packaging:**

17kg, 180kg, 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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