

# SYNTHESO HT 680, 1000, 1500

Synthetic long-term and high-temperature oils



## Benefits for your application

- **Synthetic long-term and high-temperature oils**
- **Very good viscosity/ temperature properties**
- **Reduce friction**
- **High scuffing load capacity**
- **Good anti-wear properties**

## Description

SYNTHESO HT are long-term and high-temperature oils on a polyglycol basis. They have a high scuffing load capacity and protect well against wear. In the FZG test, DIN 51 354, A/8, 3/90, their scuffing load stage is >12 and their work-related change in weight is ≤ 0.2 mg/kWh. SYNTHESO HT oils have excellent ageing and oxidation stability and very good viscosity/temperature properties and are ideal for high temperatures.

## Application

SYNTHESO HT oil are used for the lubrication of spur and bevel gears and rolling bearings such as spherical roller bearings in bowl mill crushers, plain bearings and gear couplings subject to high temperatures and high surface pressure. Substantially less friction and powerful protection against wear are major benefits of these products.

## Application notes

SYNTHESO HT oils are often used for immersion lubrication. Immersion circulation and injection lubrication are supported as well provided that you do not exceed the viscosity limits of the pumps or the entire system.

SYNTHESO HT oils are not miscible with mineral oils and synthetic hydrocarbons. Therefore, you are advised to clean the lubrication points before SYNTHESO HT oils are introduced. Because of their high viscosity, be careful about rinsing with SYNTHESO HT. Experience shows that contamination of up to about 5% with mineral oils and hydrocarbons will not be critical.

Beyond that level, you should drain the oil once more when it is at operating temperature and completely refill the system with fresh oil.

SYNTHESO HT oils are neutral towards ferrous materials and virtually all non-ferrous metals. There may be increased wear when the contact surfaces of design elements made of aluminium or aluminium alloys are exposed to dynamic stress (sliding speed and high loads). It may be necessary to carry out wear tests. Depending on temperature and time of exposure, synthetic lubricants based on polyglycol may affect the functionality of rubber-elastic sealing materials. Seals made of NBR materials (acrylonitrile butadiene rubber) can be used at permanent temperatures up to 100 °C. For higher temperatures, it is advisable to use seals based on FPM (fluoropolymers) as those elastomers are resistant to SYNTHESO HT oils. Be aware that different elastomer qualities from the same or different manufacturers will behave differently.

Coats of paints may be attacked by synthetic lubricants. When applying SYNTHESO HT oils we recommend the use of two-component (reactive) paints for interior coating. Oil inspection glasses should preferably be made of natural glass or polyamide materials. Other transparent plastics such as plexiglass tend to crack under stress. **It is advisable to test the suitability of design materials, especially those intended for series application.**

## Material safety data sheets

Material safety data sheets can be requested via our website [www.klueber.com](http://www.klueber.com). You may also obtain them through your contact person at Klüber Lubrication.

Pack sizes	SYNTHESO HT 680	SYNTHESO HT 1000	SYNTHESO HT 1500
Canister 20 kg	+	+	+
Drum 180 kg	+	+	+



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Product data	SYNTHESO HT 680	SYNTHESO HT 1000	SYNTHESO HT 1500
Article number	012048	012049	012107
ISO viscosity grade, DIN ISO 3448	680	1 000	1 500
Lower service temperature	-20 °C / -4 °F	-20 °C / -4 °F	0 °C / 32 °F
Upper service temperature	150 °C / 302 °F	150 °C / 302 °F	150 °C / 302 °F
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C	approx. 680 mm <sup>2</sup> /s	approx. 1 000 mm <sup>2</sup> /s	approx. 1 500 mm <sup>2</sup> /s
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C	approx. 118 mm <sup>2</sup> /s	approx. 165 mm <sup>2</sup> /s	approx. 230 mm <sup>2</sup> /s
Viscosity index, DIN ISO 2909	>= 260	>= 275	>= 220
Density, DIN 51757, 20 °C	approx. 1.05 g/cm <sup>3</sup>	approx. 1.07 g/cm <sup>3</sup>	approx. 1.09 g/cm <sup>3</sup>
Pour point, DIN ISO 3016	<= -25 °C	<= -20 °C	<= 0 °C
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus	>= 200 °C	>= 200 °C	>= 200 °C
FZG scuffing test, DIN ISO 14635-1, A/8.3/90, change in weight	<= 0.2 mg/kWh	<= 0.2 mg/kWh	<= 0.2 mg/kWh
FZG scuffing test, DIN ISO 14635-1, A/8.3/90, scuffing load stage	> 12	> 12	> 12
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	36 months	36 months	36 months

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Innovative tribological solutions are our passion. Through personal contact and consultation, we help our customers to be successful worldwide, in all industries and markets. With our ambitious technical concepts and experienced, competent staff we have been fulfilling increasingly demanding requirements by manufacturing efficient high-performance lubricants for more than 80 years.

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