

## HO PLUS 68

### HYDRAULIC OIL – HEES (Specification: ISO 15380)

#### Description

Hydraulic oil **PLUS** is a high performance fully synthetic hydraulic oil from mixture of saturated and unsaturated esters. Hydraulic oils **PLUS** has a great lubricity characteristics, excellent thermooxidation stability and perfect cold-exposure properties. It also provides a great temperature range performances. Enables a long oil change interval (extended lifetime filling interval).

#### Areas of Application

Hydraulic oil **PLUS** is designed for hydrostatic and hydrodynamic mechanical parts of machines and machinery. The ready biodegradability and non-toxic nature of these products make this hydraulic oil an excellent choice where leakage or spillage could enter environmentally sensitive areas (forestry works, hydroelectrics stations, earth-moving industry, agriculture industry etc.)

#### Characteristic features:

- Great lubrication performances
- Perfect anti-wear propertiest
- Non-toxic
- Great cold-exposure properties
- Excellent thermooxidation stability
- Easily biodegradable
- Good compatibilty with sealing materials, paints and hose
- Great protection against rust and corrosion
- Excellent wide temperature range performances
- With non-foaming additives



#### Synthetic esters

- Synthetic esters are made from organic acids and alcohols
- Originally formulated as a replacement for triglycerides, they perform better in nearly every performance criteria
- Work better at both higher and lower temperatures
- Low volatility and a higher lubricity all while maintaining high levels of biodegradability

#### Advantages of synthetic esters against mineral fluids

- + **LUBRICATING PROPERTIES**
- + **DURABILITY (3-4x LONGER – HO PLUS; 5-6x LONGER – HO PREMIUM)**
- + **HIGH VISCOSITY INDEX**
- + **RESISTANT TO EXTREME PRESSURE/TEMPERATURE**
- + **CLEANING PROPERTIES**

## TYPICAL CHARACTERISTICS

Characteristics of HO PLUS ISO VG 46	Method	UNIT	Typical values
<b>Viscosity 40°C</b>	ASTM D445	mm <sup>2</sup> /s	68
<b>Viscosity 100°C</b>	ASTM D445	mm <sup>2</sup> /s	14,1
<b>VI</b>	ASTM D 2270		210
<b>Density (20 °C)</b>	ASTM D 4052	g/cm <sup>3</sup>	922
<b>Flash point COC</b>	ASTM D92	°C	>230
<b>Pour point</b>	ASTM D97	°C	<-35
<b>Total Acid Number (TAN)</b>	ASTM D 664/ASTM D 974	mg KOH/g	≤ 1
<b>Water content</b>	ASTM D 4928	%	≤ 0,01
<b>Foam Seq. 1/2/3</b>	ASTM D 892	ml/ml	0/0/0
<b>Air release 50°C</b>	ASTM D 3427	min	3
<b>Copper corrosion (3h/100°C; 24h/100°C)</b>	ASTM D 130	rating	1a
<b>Steel corrosion Procedure A (distilled water); B (synthetic sea water)</b>	ASTM D 665	rating	pass;pass
<b>AW - Four Ball Tests (1500 rpm/1h/300N)</b>	ASTM D 4172	mm	>0,4
<b>FZG Gear Test A 8.3/90 (visual) - damage load stage</b>	DIN 51354, part 2)	rating	12
<b>RVPOT (150°C, H<sub>2</sub>O, O<sub>2</sub>, Cu Catalyst) - life time</b>	ASTM D 2272	min	665

The above-listed data represent average values. They are intended as a guide to facilitate handling and cannot be regarded as specified data.