

# KOMATSU<sup>®</sup>

## Product data

**Forestry Quality™**

**HE 46 Natura**

### *Environmentally Considerate, Fully Synthetic Hydraulic Fluid*

- European Union Ecolabel
- Versatile Applications

Hydraulic Oil HE 46 Natura is an advanced hydraulic fluid for use in hydraulic and power transmission systems. It is readily biodegradable with a low ecotoxicity, and is particularly suited for use in environmentally sensitive areas. Fully synthetic esters, blended with ash less additives, provide Hydraulic Oil HE 46 Natura with a superior blend of lubrication performance and environmental acceptability.

#### **Performance, Features & Benefits**

##### **Excellent wear protection**

Advanced ash less (zinc-free) anti-wear additives provide protection over a wide range of conditions – proven protection in tough industry standard tests such as the Eaton Vickers 35VQ25 vane pump and Komatsu HPV35+35 high pressure piston pump.

##### **Maintaining system efficiency**

Superior cleanliness and filterability; coupled with excellent water separation, air release and anti-foam characteristics, all help to maintain or enhance hydraulic system efficiency. The filterability of HE 46 Natura exceeds the stringent DIN 51524 Part 3 HVLP requirements, even when contaminated with water. HE 46 Natura is delivered with a minimum ISO 4406 cleanliness of 21/19/16.

##### **Readily biodegradable**

HE 46 Natura is biodegraded by over 60% after 28 days in the OECD 301 B carbon dioxide evolution test.

##### **Low toxicity towards the environment**

HE 46 Natura is classified as 'not harmful' to bacteria, algae, freshwater and marine invertebrates, and fish when tested as water-accommodated fractions (WAFs) according to OECD and EPA test guidelines.

##### **Very high renewables content**

HE 46 Natura has a mean biobased content of over 80% (ASTM D 6866).

#### **Main Applications**

##### **Mobile / exterior hydraulic applications**

Hydraulic and fluid power transmission systems in exposed environments can be subject to wide variations in temperature. The naturally high, shear stable viscosity index (VI) of HE 46 Natura helps deliver responsive performance from cold start to full load, heavy duty operation.

##### **General industrial control equipment and hydraulic systems**

The excellent anti-wear properties and high viscosity index (VI) of HE 46 Natura, mean that it can often be used where ISO 11158 (HM/HV) and DIN 51524 Part 2 or Part 3 (HLP/HVLP) mineral oil hydraulic fluids are specified. However, bulk fluid operating temperatures should not be allowed to exceed 90°C.

##### **Environmentally sensitive areas**

HE 46 Natura is an 'environmentally acceptable' hydraulic fluid (ISO 15380 HEES), with 'reduced harm for water and soil during use' (European Union ecolabel). When compared to conventional mineral oil hydraulic fluids, it will have a reduced environmental impact in the event of a leak or accidental spillage. It is particularly suited for use in environmentally sensitive areas.

## Specifications, Approvals & Recommendations

- European Union Ecolabel for lubricants
- Swedish Standard **SS 15 54 34, SP** listed.
- **ISO 15380 HEES**
- **VDMA 24568 synthetic esters**
- **Dutch MIA/VAMIL Milieulijst**
- **German Positivliste Bioschmierstoffe**
- **USDA Bio-preferred program**

**HE 46 Natura** is approved as meeting the anti-wear requirements of the hydraulic fluid recommendations for Eaton Vickers products for mobile and industrial systems according to Brochure 03-401-2010.

## Compatibility & Miscibility

### Fluid Compatibility

HE 46 Natura is miscible with mineral oil hydraulic fluids. However, in order to ensure that the environmental properties and performance of HE 46 Natura are maintained, the hydraulic system should be drained and flushed thoroughly when changing fluids. Guidelines on fluid change-over can be found in ISO 15380 Annex A. Owing to the surface-wetting properties of HE 46 Natura, if the system was previously operated using a mineral oil hydraulic fluid, deposits formed in the system during operation may be loosened and deposited in the system filters. The filters should therefore be checked at regular intervals after fluid change-over.

### Seal & Paint Compatibility

HE 46 Natura is compatible with most seal materials and paints normally specified for use with conventional mineral oil based hydraulic oils. Certain plastics and industrial adhesives may be adversely affected and advice should be sought from the respective manufacturers.

## Typical Physical Characteristics

Properties	Method	HE 46 Natura
Viscosity grade		46
ISO Fluid Type	ISO 6743-4	HEES
Kinematic Viscosity @-20°C cSt	ISO 3104	1522
Kinematic Viscosity @40°C cSt	ISO 3104	47.2
Kinematic Viscosity @100°C cSt	ISO 3104	9.41
Viscosity Index	ISO 2909	188
Density @15°C kg/m³	ISO 12185	921
Flash Point (Cleveland Open Cup) °C	ISO 2592	322
Pour Point °C	ISO 3016	-42

These characteristics are typical of current production, variations in these characteristics may occur.

## Health, Safety & Environment

### Health and Safety

HE 46 Natura is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained. Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water. Guidance on Health and Safety is available on the appropriate Safety Data Sheet.

### Protect the Environment

Take used oil to an authorized collection point. Do not discharge into drains, soil or water. Additional Information

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