

## PRODUCT DATA SHEET

# PALFINGER HYDRAULIC OIL 15/32/46/68

Fully synthetic, biodegradable Genuine PALFINGER Hydraulic fluid for wide range of applications & temperatures.

BIO



- PALFINGER Hydraulic Fluid BIO is an advanced hydraulic fluid, readily biodegradable with a low ecotoxicity, for hydraulic and power transmission systems particularly suited for use in environmentally sensitive areas such as forests or inland waterways.
- Based on a blend of fully synthetic esters and zinc-free additives PALFINGER Hydraulic Oil BIO combines high lubrication performance and environmental acceptability.
- Available in ISO VG 15, 32, 46 & 68



# PERFORMANCE & BENEFITS

## EXCELLENT WEAR PROTECTION

Protecting components from damage can help to increase service life and maximize your return on investment. PALFINGER Hydraulic Fluid BIO can help to achieve this by providing up to 95% less wear than the industry minimum requirements. Advanced zinc-free anti-wear additives provide protection over a wide range of conditions.

## MAINTAINING SYSTEM EFFICIENCY

PALFINGER Hydraulic Fluid BIO is designed to protect, lubricate and transmit power efficiently and to boost productivity by helping equipment to meet its design capacity. Compared with the industry minimum requirements, it offers up to 67% faster air release for efficient and precise hydraulic power transmission and up to 86% better filterability in the demanding industry standard wet procedure against the limits set for mineral oils, maintaining filterability even when contaminated with water. Coupled with excellent water separation and anti-foam characteristics, to help maintain or enhance hydraulic system efficiency.

## READILY BIODEGRADABLE

PALFINGER Hydraulic Fluid BIO is biodegraded by over 75% after 28 days in the OECD 301 B carbon dioxide evolution test, exceeding the industry minimum requirement for a readily “biodegradable” lubricant (60%)

## LOW TOXICITY TOWARDS THE ENVIRONMENT

PALFINGER Hydraulic Fluid BIO 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.

## HIGH RENEWABLES CONTENT

PALFINGER Hydraulic Fluid BIO has been awarded the European Union Ecolabel for Lubricants and contains over 80% renewable raw materials (ASTM D 6866). It therefore qualifies for many schemes designed to encourage the use of environmentally acceptable lubricants.

# APPLICATIONS

## MOBILE & OUTDOOR HYDRAULIC APPLICATIONS

- PALFINGER Hydraulic Fluid BIO is used as running in & initial fill oil in PALFINGER products. It can be used in all current and older PALFINGER equipment and generally in hydraulic and fluid power transmission systems in exposed environments subjected to wide variations in temperature
- Its naturally high, shear stable viscosity index (VI) helps deliver responsive performance from cold start to full load, heavy duty operation.

## ENVIRONMENTALLY SENSITIVE AREAS

- PALFINGER Hydraulic Fluid BIO is an 'environmentally acceptable' hydraulic fluid according to 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, hence being particularly suited for use in environmentally sensitive areas.

## GENERAL INDUSTRIAL CONTROL EQUIPMENT AND HYDRAULIC SYSTEMS

- Due to the excellent anti-wear properties and high viscosity index (VI) of PALFINGER Hydraulic Fluid BIO the fluid 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.
- Bulk fluid operating temperatures should not exceed 90°C.

## TEMPERATURE RANGE

Guidance for selecting the right viscosity grade for use in the various climate conditions.

# SPECIFICATIONS & APPROVALS

- PALFINGER Standard PNORM 04.01.03
- European Union Ecolabel for Lubricants
- ISO 15380 (HEES Fluids)
- Swedish Standard SS 15 54 34
- USDA Bio-preferred program

PALFINGER Hydraulic Fluid BIO meets the requirements of a wide range of industry bodies & equipment manufacturers.

## TECHNICAL DATA

Properties	Unit	Method	PALFINGER Hydraulic Fluid BIO			
			15	32	46	68
Kinematic Viscosity @ 40°C	mm <sup>2</sup> /s	ISO 3104	15	32	46	68
Kinematic Viscosity @ 100°C	mm <sup>2</sup> /s	ISO 3104	4.03	7.20	9.42	12.30
Viskositätsindex		ISO 2909	177	196	188	183
Density @ 15°C	kg/m <sup>3</sup>	ISO 12185	910	919	923	924
Flash Point (COC)	°C	ISO 2592	220	246	320	321
Pour Point (in °C)	°C	ISO 3016	- 36	- 39	-42	-42

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

# COMPATIBILITY & MISCIBILITY

## FLUID COMPATIBILITY

PALFINGER Hydraulic Fluid BIO is miscible with mineral oil hydraulic fluids. However, to ensure that its environmental properties and performance 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 PALFINGER Hydraulic Fluid BIO, 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

PALFINGER Hydraulic Fluid BIO is compatible with most seal materials, as hydrogenated nitrile and fluoro-elastomers such as Viton, and paints normally specified for use with mineral oils hydraulic oils. Depending on the elastomer grade it is also compatible with polyester urethane (AU) elastomers. Other seal materials and system components such as paints may be affected or has not been tested and advice should be sought from the respective manufacturers.

## HEALTH, SAFETY & ENVIRONMENT

PALFINGER Hydraulic Fluid BIO 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. Further 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.