



# **BIODEGRADABLE HYDRAULIC OILS**

# **ADDINOL ECOSYNTH HEES 32, 46**

## PRODUCT DESCRIPTION

ADDINOL Ecosynth HEES 32 and Ecosynth HEES 46 are manufactured from unsaturated oleic acid ester with a zinc-free combination of additives which enhance protection against corrosion, wear and ageing.

Temperature range:

Ecosynth HEES 32: -20°C up to +90°C Ecosynth HEES 46: -25°C up to +90°C

#### **APPLICATION**

- Excellent suitability as pressure fluid for hydraulic systems, for the lubrication of bearings and gears
- The multi-grade character covers the adjacent viscosity grades and predestinates the product for utilization in outdoor hydraulics
- Recommended in machines, appliances and systems which are used in ecologically sensitive areas, e.g. water protection areas, agriculture and forestry, public sector, inland waterways and construction industry

## **SPECIFICATIONS**

Meet the requirements according to:

- VDMA-guideline 24568 (HEES oils)
- DIN 51524-2 (HLP)
- DIN 51524-3 (HVLP)
- ISO 15380

Biodegradability according to:

- CEC-L-33-T-82 (at least 95 %)
- ISO 15380 (at least 60 %)
- OECD 301 B (at least 60 %)

#### **DELIVERY**

Delivery preferable in containers, drums and 20 L cans.

#### **NOTE**

Please note the guidelines according ISO 15380 annex A and/or VDMA-guideline 24569 when changing from mineral oil to biodegradable oil!

#### **CHARACTERISTICS**

- · Multi-grade character
- Very good viscosity-temperature behaviour
- · Improved corrosion and wear protection
- Quickly biodegradable

# **ADVANTAGES AND BENEFITS**

- Usable in outside devices
- HEES 32: trouble-free usage in a temperature range from -20°C up to +90°C
- HEES 46: trouble-free usage in a temperature range from -20°C up to +90°C
- Extended applications compared to similar products based on rape oil (HETG)
- Long lifetime and high protection of the hydraulic
- Environmentally friendly
- Excellent suitable for ecological sensitive areas





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## SPECIFICATIONS AND TYPICAL PARAMETERS

Feature	Test condition / unit		ECOSYNTH HEES 32	ECOSYNTH HEES 46	Method acc. to
Temperature range		°C	-20 up to +90	-25 up to +90	DIN 51519
Density	at 15°C	kg / m³	911	920	DIN 51757
Viscosity	at 0°C	mm²/s	224	345	ASTM D 7042
	at 40°C	mm²/s	33	46	
	at 100°C	mm²/s	7.4	9.1	
Viscosity index			201	185	DIN ISO 2909
Flash point	coc	°C	285	300	DIN EN ISO 2592
Pour point		°C	-30	-42	ASTM D 7346
Corrosion protection on steel	method A		passed		DIN ISO 7120
Corrosivity on copper	100°C, 3h	corr. level	1		DIN ISO 2160
Mech. test in FZG machine A/8.3/90		scuffing load stage	12		ISO 14635-1
Air separation ability	at 50°C	minutes	2	< 5	ISO 9120
Mech. test in vane pump			passed		DIN 51389-2
Foaming characteristics	at 24°C	ml / ml	0/0		
	at 93.5°C	ml / ml	0/0		ASTM D 892
	at 24°C after 93.5°C	ml / ml	0/0		

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The data given in this product sheet represent our current level of knowledge and experience. Due to the various specific application they do, however, not discharge the user from his own examination. The information provided herein may not be used to derive a legally binding warranty of specific properties or the suitability for a certain purpose of application. Detailed security-concerning and toxicological data as well as security instructions for each product can be taken from the corresponding Material Safety Data Sheets (MSDS). High-performance lubricants from ADDINOL are under continuous development. Therefore, ADDINOL Lube Oil GmbH keeps the right to change technical data in this product data sheet without notification. In case of doubt, please do not hesitate to contact our customers' advisory service.