



BIODEGRADABLE HYDRAULIC OILS

ADDINOL ECOSYNTH SUPER HEES 46 S

PRODUCT DESCRIPTION

ADDINOL Ecosynth Super HEES 46 S is a synthetic multi-grade hydraulic fluid based on saturated complex esters. A combination of zinc-free active substances improves thermal-oxidative and hydrolytic stability, protection against corrosion and wear as well as ageing behaviour.

APPLICATION

- Excellent suitability as pressure fluid for hydraulic systems
- Highly suitable for loss lubrication of bearings and gears
- Recommended and very suitable in ecologically sensitive areas, e.g. in water protection areas, agriculture, forestry and local economy
- Also applicable, where an ISO viscosity grade 32 or 68 is recommended

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

SPECIFICATIONS

Meets the requirements according to:

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

Biodegradability according to:

- CEC-Test L-33-T-82: >85%
- ISO 15380 (at the minimum 60%)
- OECD 301 B (at the minimum 60%)

DELIVERY

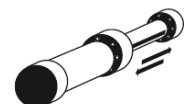
Delivery preferable in drums and 20 l cans.

CHARACTERISTICS

- Outstanding thermal-oxidative stability
- Very good viscosity-temperature behaviour
- Outstanding corrosion and wear protection
- Quickly biodegradable

ADVANTAGES AND BENEFITS

- Minimal oil ageing with extended oil change intervals (up to 10,000 hours)
- Multi-grade character, trouble-free usage in a temperature range from -30°C up to +110°C
→ extended applications compared to similar products based on rape oil or common oleic acid esters
- Trouble-free operation also in multi-metal systems
- Environmentally friendly





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SPECIFICATION AND TYPICAL PARAMETERS

Feature	Test conditions / Unit		Ecosynth Super HEES 46 S	Method acc. to
Temperature range			-30°C up to +110°C	
Density	at 15°C	kg / m ³	937	DIN 51757
Viscosity	at 0°C	mm ² /s	405	ASTM D 7042
	at 40°C	mm ² /s	48	
	at 100°C	mm ² /s	8.6	
Viscosity index			158	DIN ISO 2909
Flash point	COC	°C	218	DIN EN ISO 2592
Pour point		°C	-51	ASTM D 7346
Iodine value		g I ₂ / 100 g	1.3	
Corrosion protection on steel			passed	DIN ISO 7120
Corrosivity on copper	100°C, 3h	corrosion level	1	DIN ISO 2160
	120°C, 48h	corrosion level	1	
Mech. test in FZG machine A/8.3/90		scuffing load stage	12	ISO 14635-1
Air separation ability	at 50°C	min	< 9	ISO 9120
Mech. test in vane pump			passed	DIN 51389-2
Dried TOST test			> 2,000	DIN ISO 4263-1
Foaming characteristics	at 24°C	ml / ml	< 20 / 0	ASTM D 892
	at 93.5°C	ml / ml	< 20 / 0	
	at 24°C after 93.5°C	ml / ml	< 20 / 0	

ADDINOL - The Experts for High-Performance Lubricants

We at ADDINOL develop and produce more than 600 high-performance lubricants of the new generation. Among these are automotive lubricants for highest demands and pioneering developments for industrial applications. Our customers all over the world benefit from the high and stable quality of our ADDINOL high-performance lubricants, our know-how and the individual customer advisory service of our competent experts. Our company has world wide activities. ADDINOL high-performance lubricants are distributed by more than 90 international partners.

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.