



BIODEGRADABLE HYDRAULIC OILS

ADDINOL HYDRAULIC FLUID HFD U 46, HFD U 68

PRODUCT DESCRIPTION

ADDINOL Hydraulic Fluid HFD U 46 and HFD U 68 are flame-resistant hydraulic fluids of type HFD U based on ester with excellent biodegradability. The hydraulic fluids contain additives to improve wear and corrosion protection and resistance to ageing.

The operating temperature should not exceed 90°C, short term excess can be tolerated. If the operating temperatures are exceeded over a longer period, the oil change intervals are to be shortened according to the operating instructions of the plant.

APPLICATION

- Excellent suitability as hydraulic fluid in systems with special requirements regarding fire protection
- Preferably used for plants, machines and devices, which demand water-free hydraulic fluids, but would cause environmental damages by leakages with the use of mineral oils

In case of changing the filling of equipment from mineral oil based hydraulic oils to an HFD type, the hydraulic hoses, fittings and seals and paintings of the system should be especially checked regarding the compatibility with the fluid. All seals and materials which are usually used in systems with hydraulic oils are suitable for the employment of ADDINOL Hydraulic fluid HFD U 46 and HFD U 68.

CHARACTERISTICS

- Very good biodegradability
- High auto-ignition temperature
- Very good viscosity-temperature behaviour
- Good compatibility with conventional sealing materials and paints
- Toxicologically harmless
- Good ageing stability

SPECIFICATIONS

Meets the requirements according to:

- DIN EN ISO 6743-4 for flame-resistant HFD U fluids
- DIN EN ISO 12922 (2001)
- 7. Luxembourg Report for flame-resistant fluids (only valid for HFD U 68)

DELIVERY

Delivery preferable in drums.

PLEASE NOTE

ADDINOL Hydraulic Fluid HFD U 46 and HFD U 68 are not subject to labelling and are toxicologically harmless. There are no special regulations for transport (detailed information are contained in the EC material safety data sheet.)

Please note the guidelines when changing from mineral oil to HFD U 46 or 68!

ADVANTAGES AND BENEFITS

- Environmentally friendly
- Flame-resistant
- Usable in temperature range from -20°C up to +90°C
- Improved protection against leakages
- Not subject to labelling, no health hazards
- Long operating times are guaranteed





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SPECIFICATIONS AND TYPICAL PARAMETERS

Feature	Test condition / unit		HFD U 46	HFD U 68	Method acc. to
ISO viscosity grade			46	68	DIN 51519
Density	at 15°C	kg / m ³	916	928	DIN 51757
Viscosity	at 0°C	mm ² /s	348	524	ASTM D 7042
	at 40°C	mm ² /s	49	69.5	
	at 100°C	mm ² /s	9.7	12.7	
Viscosity index			189	185	DIN ISO 2909
Flash point	COC	°C min.	320	320	DIN EN ISO 2592
Pour point			-40	-36	ASTM D 7346
Auto-ignition temperature			430	490	DIN 51794
Corrosion protection on steel	method A		passed	passed	DIN ISO 7120
Corrosivity on copper	3h, 100°C	corrosion level	1	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	min	7	9	ISO 9120
Foaming characteristics	at 24°C	ml / ml	100 / 0	0 / 0	ASTM D 892
	at 93.5°C	ml / ml	30 / 0	10 / 0	
	at 24 after 93.5°C	ml / ml	100 / 0	0 / 0	

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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.