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# ProEco® HE 501 Series

## Biodegradable hydraulic fluids

### Description

ProEco HE 501 Series are readily biodegradable hydraulic oils based on synthetic esters with a high proportion of regenerative raw materials.

### Application

ProEco HE 501 Series can be used in static and mobile hydraulic equipment under normal operating conditions. Their high viscosity index enables them to be employed as multifunctional hydraulic fluids at a wide range of temperatures. Applications for ProEco HE 501 Series exist in the construction industry, the water industry and in the agricultural, forestry and municipal sectors.

### Features and benefits

- EU Eco Label with a proportion of regenerative raw materials exceeding 60 %
- Low classification under German clean water legislation (Wassergefährdungsklasse – WGK 1)
- Perform very well at low temperatures owing to their low pour points.
- Good compatibility with the materials used for hoses and seals.

### Specifications

- ISO 15380
- VDMA 24568 HEES
- Biodegradable OECD 301 B
- Bosch Rexroth RD90221-1

### Environmental labels

- EU Eco Label
- MIA Vamil
- Swedish Standard SS 15 54 34

## Typical properties

Properties	Unit	ProEco HE 501-22	ProEco HE 501-32	ProEco HE 501-46	ProEco HE 501-68	Method
Viscosity grade ISO-VG	–	22	32	46	68	ASTM D-2422
Viscosity, kinematic, low temperature						
at –40 °C	mm <sup>2</sup> /s	5620	13400	17800	n. m.	ASTM D-445
at –30 °C	mm <sup>2</sup> /s	1238	2904	4213	23410	ASTM D-445
at –20 °C	mm <sup>2</sup> /s	535	809	1478	2409	ASTM D-445
at –10 °C	mm <sup>2</sup> /s	259	380	665	1044	ASTM D-445
Viscosity, kinematic						
at 0 °C	mm <sup>2</sup> /s	139	199	336	508	ASTM D-445
at 40 °C	mm <sup>2</sup> /s	23	31	45	65	ASTM D-445
at 100 °C	mm <sup>2</sup> /s	5.6	6.9	9.2	12.1	ASTM D-445
Viscosity index	–	192	190	190	189	ASTM D-2270
Density						
at 15 °C	g/cm <sup>3</sup>	0.880	0.892	0.910	0.914	ASTM D-4052
Flash point	°C	>185	>190	>290	>290	ASTM D-92
Pour point	°C	–60	–57	–48	–45	ASTM D-97
TAN, total acid number	mg KOH/g	≤1.2	≤1.2	≤1.2	≤1.2	ISO 6618
Water, water content	%	<0.05	<0.05	<0.05	<0.05	ASTM D-1744
Foam						
Sequence 1	ml	0/0	0/0	0/0	90/0	ASTM D-892
Sequence 2	ml	0/0	0/0	0/0	20/0	ASTM D-892
Sequence 3	ml	0/0	0/0	0/0	0/0	ASTM D-892
Air release						
at 50 °C	min	<5	<4	<4	<4	DIN ISO 9120
Copper corrosion copper strip	–	1a	1a	1a	1a	ASTM D-130
Steel corrosion steel finger	–	no rust	no rust	no rust	no rust	ASTM D-665 A
Demulsibility						
oil-water	ml	40-40-0	40-40-0	40-40-0	40-40-0	ASTM D-1401
at 54 °C	min	25	25	25	25	ASTM D-1401
Filterability without water						
Stage I F min. 80 %	%	99	98	96	92	ISO 13357-2: 1998
Stage II F min. 60 %	%	98	96	94	85	ISO 13357-2: 1998
Filterability with water						
Stage I F min. 70 %	%	82	80	88	78	ISO 13357-1: 2002
Stage II F min. 50 %	%	75	77	81	69	ISO 13357-1: 2002
Biodegradability OECD	%	>60	>60	>60	>60	OECD 301 B

## Storage Stability

The products in original package can be stored for at least 3 years at ambient storage conditions and temperature without any deterioration.

## Safety

When using these products, the information and advice given in our **Safety Data Sheet** should be observed. Due attention should also be given to the **precautions** necessary for handling chemicals.

**Note**

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

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