

HYDROTHERM 42 HFC RED FAM

High performance fire-resistant hydraulic fluid, new technology HFC-water/glycol fluid

Description

HYDROTHERM 42 HFC RED FAM is a new, high performance fire-resistant HFC hydraulic fluid, based on new developed water-glycol polymer solution. HYDROTHERM 42 HFC RED FAM is a fire-resistant hydraulic fluid according to DIN 51502 and ISO 12922 type HFC. HYDROTHERM 42 HFC RED FAM is an aqueous polymer solution and contains >40% water. HYDROTHERM 42 HFC RED FAM fulfils and surpasses the requirements according to the 7th Luxembourg report and the ISO 12922 –Type HFC 46. HYDROTHERM 42 HFC has a good biodegradation. The fluid is zinc and ash free and free of any dangerous substances.

Application

HYDROTHERM 42 HFC RED FAM is a new developed HFC hydraulic medium according to DIN 51502, VDMA 24317, ISO 12922 of the latest technology. HYDROTHERM 42 HFC RED FAM can be used in mobile and stationary hydraulic systems, in steel industry, aluminum molding industry, rolling mills, injection molding machines. HYDROTHERM 42 HFC RED FAM can also be used in mining application and die-casting machines. HYDROTHERM 42 HFC RED FAM can be used in hydraulic application to minimize risk of fire. To ensure excellent fire resistance and corrosion protection properties the product should be used in suitable temperature ranges (to avoid evaporation loss in the hydraulic system). Technical advises for the use of HFC water based hydraulic systems are laid down in relevant fluid specifications.

Advantages

- Surpasses the requirements according to 7th Luxembourg report
- FM Approved
- Surpasses the DIN EN ISO 12922 – HFC 46 requirements
- Excellent wear protection
- High viscosity index
- Low pourpoint
- Excellent corrosion protection (steel and metal compatibility)
- Good heat conductivity
- High resistance to bacteria, fungi
- Good filtration behavior, free of dangerous substances
- Good biodegradability
- Newest Fuchs formulation technology
- Outstanding Vickers Vane Pump anti wear performance (total wear <50 mg!!)
- Outstanding air release behavior (11 Minutes air release!!)

Specifications

- 7th Luxembourg report.
- DIN EN ISO 12922,
- VDMA 24317
- DIN 51502, fire resistant fluids type HFC 46.

Approvals

- FM Approvals. ID#: PR461732

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Typical chemical and physical properties:

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Properties	Unit		Test method
ISO VG		46	DIN ISO 3448
Kinematic viscosity			DIN 51550
at -20 °C	mm ² /s	986	and
at 0 °C	mm ² /s	256	DIN 51562-1
at 20 °C	mm ² /s	92.5	
at 40 °C	mm ² /s	42	
at 100 °C	mm ² /s	8.9	
Viscosity index	-	195	DIN ISO 2909
Density at 15 °C	kg/m ³	1084	DIN 51757
Pourpoint	°C	< -60	DIN ISO 3016
Water content	%	42	DIN 51777
pH value		9.5	DIN 51369
Brugger test	N/mm ²	47	DIN 51347-2
Foaming,			
Seq. I: 24 °C	ml	50/0	ASTM D 892
Seq. II: 93.5 °C	ml	50/0	ASTM D 892
Seq. III: 24 °C after 93.5 °C	ml	50/0	ASTM D 892
Steel rod test	degree of corrosion	0	ASTM D665
Mechanical vane pump test			DIN 51389-3
Loss-in-weight: ring	mg	19	
Loss-in-weight: vanes	mg	22	
Air release at 50 °C	min	11	DIN ISO 9120

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Corrosion protection test 35°C / 28d (ratio 0 = no effect =unchanged)	Zinc [mg]	<+1	DIN EN ISO 404-1
	Steel [mg]	<+1	
	Copper [mg]	<+1	
	Brass (Messing 63 - CuZn alloy) [mg]	<+1	
	Aluminium [mg]	<+1	
	appearance test:		
	•specimen in vapour phase	0 0 0 0 0	
	•specimen in fluid phase	0 0 0 0 0	
•of fluid phase	0 0 0 0 0		
Corrosion protection test 35°C / 28d (ratio 0 = no effect =unchanged)	Cu / Zn [mg]	<+1/<+1	DIN EN ISO 404-1
	Al / Zn [mg]	<+1/<+1	
	Steel / Zn [mg]	<+1/<+1	
	Steel / Al [mg]	<+1/<+1	
	appearance test:		
	•specimen in vapour phase	0 0 0 0 0	
	•specimen in fluid phase	0 0 0 0 0	
	•of fluid phase	0 0 0 0 0	
Thermal stability test (TOST) 95°C, 3l O ₂ /h, 200h	fresh: pH insoluble residues [%]	9.8 <0,1	DIN EN ISO 4263-2
	50 h: pH insoluble residues [%]	9.8 <0,1	
	100 h: pH insoluble residues [%]	9.6 <0,1	
	150 h: pH insoluble residues [%]	9.5 <0,1	
	200 h: pH insoluble residues [%]	9.2 <0,1	
	appearance Fe-coil	unchanged	
	appearance Cu-coil	unchanged	
Shear Stability: Bosch Injection Pump 250 cycles	delta V 20°C [%]	10	DIN EN ISO 20844
	delta V 40°C [%]	8	
	delta pH	0	
	delta water content [%]	-1.1	
Elastomer Compatibility a)SRE NBR1 168h / 60°C	delta volume (ISO 1817) [%]	2,1	ISO 6072
	delta Shore A hardness (ISO 1817)	-3.3	
	delta tensile strength (ISO 37) [%]	5.4	
	delta ultimate elongation (ISO 37) [%]	11.6	

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Elastomer Compatibility	delta volume (ISO 1817) [%]v	-0.9	ISO 6072
b) SRE HNBR1 168h / 60°C	delta Shore A hardness (ISO 1817)	0.3	
	delta tensile strength (ISO 37) [%]	5.1	
	delta ultimate elongation (ISO 37) [%]	17.2	
c)FKM 168h / 60°C	(static test)	pass	ISO 6072
Spray Ignition Test	(afterflame time = 0 sec)	pass excellent	DIN ISO 15029-1
Wick Flame Persistence	(persist)	pass excellent	DIN EN ISO 12922
Hot Manifold Test	(highest and lowest temperature at which no ignition occurred)	pass excellent (736-740°C)	ISO 20823

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