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## Energyn SF-C

### Fire Resistant Hydraulic Fluid, Type C (water-glycol)

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#### Description; Description

These fluids are water-glycol fluids (CETOP classification HF-C) that give excellent fire resistance and hydraulic performance. The SF-C 14 grade contains 43 % water and is for applications where a

minimum of 40 % water content is specified, such as mining; SF-C 15 contains 36 % water and is for applications where the best anti-wear properties are required.

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#### Applications; Applications

These two fluids are for use in hydraulic systems where the application of mineral hydraulic oils could present a fire risk. Examples of applications include diecasting machines, hydraulic systems in steel works, forging machinery and mining equipment.

Both Energyn SF-C 14 and SF-C 15 meet the fire resistance tests specified in the 5th Luxembourg Report, Part III. Energyn SF-C 14 is approved by the German Coal Mines, and meets the CNOMO recommendation 09-01-50.

An upper temperature limit of 65 °C applies to the use of these fluids, to avoid excessive evaporation of water. The water content

should be checked regularly in service and made up with distilled or de-ionised water. Occasional monitoring of alkalinity is recommended to ensure the correct level of corrosion inhibition.

Care should be taken to ensure that the hydraulic system is designed or adapted for use with water-glycol fluids; check on compatibility of paints, seals and metals; check that pumps and filters are suitable and properly placed in the system. Follow a thorough draining and flushing procedure when converting from other fluids to water-glycol solutions.

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#### Main Benefits; Main Benefits

- Fire resistance superior to water-in-oil emulsions and, in general, to phosphate-ester fluids, thus providing better fire protection.
- Good anti-wear and load carrying performance - therefore longer pump life and less down time.
- Good corrosion protection in both the liquid and vapour phases.
- Longer filter change periods are ensured by excellent filter material compatibility and good filterability.

- Suitable for a wide range of applications, mainly in the hot metal industries - for example die casting, hydraulic forging processes and hammers, but also in machines and drive systems used in the mining and steel industries.
- Exceptionally low pour point and high viscosity index make both these products suitable for applications where a wide range of temperatures is experienced.
- Cost effective : considerably less expensive than phosphate-ester fluids.

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#### Storage; Storage

All packages should be stored under cover. Where outside storage is unavoidable drums should be laid horizontally to avoid the possible ingress of water and the obliteration  
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of drum markings. Products should not be stored above 60°C, exposed to hot sun or freezing conditions.; of drum markings. Products should not be stored above 60°C, exposed to hot sun or freezing conditions.

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### Health, Safety and Environment; Health, Safety and Environment

Health, safety and environmental information is provided for this product in the Materials Safety Data Sheet. This gives details of potential hazards, precautions and First Aid measures, together with environmental effects and disposal of used products.; Health, safety and environmental information is provided for this product in the Materials Safety Data Sheet. This gives details of potential hazards, precautions and First Aid measures, together with environmental effects and disposal of used products.

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### Typical Characteristics; Typical Characteristics

	Test Methods; Test Methods	Units; Units	Grade ;	Grade :
Density at 15 °C	ISO 3675, ASTM D1298	kg/m <sup>3</sup>	14 1075	15 1080
Kinematic Viscosity at : -10 °C	ISO 3104, ASTM D445	mm <sup>2</sup> /s	720	790
0 °C			265	275
20 °C			99	112
40 °C			46	46
50 °C			34	34
Pour Point	ISO 3016, ASTM D97	°C	-47	-40
Colour			yellow	yellow
Anti-corrosion Performance	5th Lux Report (Equiv. to CdF and LOB) CNOMO, NF E 48.616 (Equiv. method to CETOP RP 48H) ISO 7210 (D665 A)		pass pass	pass pass
pH Value	ASTM D1121	mMol	9.7	9.7
Reserve Alkalinity (to pH 5.5)		HCl/l	150	130
Specific Heat 20 °C		kJ/kg/K	3.3	3.2
Foaming Tendency/Stability Sequence I	ASTM D892	ml	20/nil	20/nil
Water Content	ASTM D1744	%wt	43	36
Four-Ball Wear Test : Mean wear-scar diameter (5th Lux Report)		mm	0.76	0.76
Vickers Vane-Pump Test 105 bar/250 h/50 °C	CETOP RP 67H	mg	<200	<100
Total ring and vane wear				
5th Luxembourg Report : Spray flammability test rating		mm	pass 79	pass 90
flame propagation in a mixture				

of fluid and coal dust  
NBC 570

meets            meets  
requirements requirements

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*The above figures are typical of those obtained with normal production tolerance and do not constitute a specification.*

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