



INTERNATIONAL STANDARD ISO 12922:1999
TECHNICAL CORRIGENDUM 1

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Lubricants, industrial oils and related products (class L) — Family H (Hydraulic systems) — Specifications for categories HFAE, HFAS, HFB, HFC, HFDR and HFDU

TECHNICAL CORRIGENDUM 1

Lubrifiants, huiles industrielles et produits connexes (classe L) — Famille H (Systèmes hydrauliques) — Spécifications applicables aux catégories HFAE, HFAS, HFB, HFC, HFDR et HFDU

RECTIFICATIF TECHNIQUE 1

Technical Corrigendum 1 to International Standard ISO 12922:1999 was prepared by Technical Committee ISO/TC 28, *Petroleum products and lubricants*, Subcommittee SC 4, *Classifications and specifications*.

Page 5, Table 2

Replace Table 2 with the following table.

Table 2 — Requirements for categories HFB, HFC and HFD fluids

Characteristic or test	Unit	Specifications			Standard or test method
		Finished emulsion Category HFB ^b	Finished solution Category HFC ^b	Category HFD ^b (R-U classes)	
Composition	Type HFB: These are water-in-oil emulsions (+5 °C to + 50 °C, ISO 7745) Type HFC: These are water polymer solutions, typically with more than 35 % water content (- 20 °C to +50 °C, ISO 7745) Type HFDR: These are synthetic fluids free of water consisting of phosphate esters (- 20 °C to + 70 °C/150 °C ^a , ISO 7745) Type HFDU: These are synthetic fluids free of water but of other compositions than HFDR (- 20 °C to + 70 °C/150 °C ^a , ISO 7745)				
Viscosity grade, ISO VG		46 - 68 - 100	22 - 32 - 46 - 68	15 - 22 - 32 - 46 - 68 - 100	ISO 3448^l
Appearance		c	j	j	
Water content	% (m/m)	c	> 35	< 0,1	ISO 760 or DIN 51777-2 ^j
	% (V/V)	> 40	c	c	ISO 3733
Foam at: 25 °C maximum	ml/ml	c	300/10	300/10	ISO 6247
50 °C maximum	ml/ml	c	300/10	c	
100 °C maximum	ml/ml	c	c	300/10	
25 °C maximum	ml/ml	c	300/10	300/10	
Air release at 25 °C	min	d	c	c	
Air release at 50 °C maximum	min	c	20; 20; 25; 25	8; 10; 12; 15; 25; 30	ISO 9120
pH at 20 °C		c	6,7; 11,0	c	VII LUX 5.4
Emulsion stability, 1 000 h at 20 °C, maximum:					VII LUX 5.2.2
— change in water content at 425 ml	%	5	c	c	
— change in water content at 125 ml	%	5	c	c	
— surface oil	ml	10	c	c	
— accumulated free water	ml	2	c	c	
Emulsion stability, 48 h at 70 °C, maximum					VII LUX 5.2.3
— surface oil	ml	3	c	c	
— accumulated free water	ml	1	c	c	
Emulsion stability, 336 h at - 10 °C/168 h at +20 °C, maximum					VII LUX 5.2.4
— surface oil	ml	2	c	c	
— accumulated free water	ml	1	c	c	
— max change in water content at 5 ml	%	15	c	c	
— mean change in water content at 5 ml	%	10	c	c	
Acid number	mg KOH/g	d	c	d	ISO 6618, ISO 6619 ^f
Corrosion protection	Rating	Pass c	Pass c	c Pass	ISO 4404 VII LUX 5.9.1 VII LUX 5.8
Shear stability, 175 bar/250 cycles ^e					
— viscosity change at 20 °C, maximum	%	± 15	d	± 10	
— viscosity change at 40 °C, maximum	%	± 15	d	± 5	
— viscosity change at 100 °C, maximum	%	c	c	± 7	
— pH change, maximum		c	± 1,0	c	
— water content change, maximum	%	5	8	c	
— acid number change, maximum	mg KOH/g	± 0,50	c	± 0,50	
Density at 15 °C	kg/m ³	d	d	d	ISO 3675 or ISO 12185
Elastomer compatibility: 60 °C/168 h					ISO 6072
— NBR 1 ^g elastomers					
• relative volume change, maximum	%	7	7	c	
• relative hardness change mini/maxi	IRHD	-7/+2	-7/+2	c	
• change in tensile strength	%	d	d	c	
• elongation at break	%	d	d	c	