



The Elco Corporation

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Elco 148 Antiwear Hydraulic Fluid Additive

Features

Elco 148 is a multifunctional universal additive for use in preparing premium antiwear hydraulic fluids. When formulated in a suitable base stock, Elco 148 imparts these benefits:

- Extended oil life and pump durability
- Antiwear and EP performance
- Imparts excellent filterability and demulsibility characteristics
- Excellent thermal and oxidation stability
- Designed for Group I base stocks. For Group II, III and IV, see Elco 148P

Application

Treated at 0.55% volume (0.65% weight) in suitable base stocks, Elco 148 meets or exceeds the requirements of:

- Denison HF-0
- Cincinnati Machine P-68, P-69, P-70
- U.S. Steel 127, 136
- AFNOR NFE 48-603
- GM LS-2
- Sauer-Sunstrand
- Meets DIN 51524 Part II

Characteristics

<u>Physical</u>	<u>Typical</u>
Flash Point	130°C min
Specific Gravity	1.06 (8.84 lb/gal)
Viscosity @ 40°C	150 cSt
<u>Chemical</u>	
Phosphorus	4.4%
Sulfur	9.3%
Zinc	5.1%

Recommended Blending, Handling and Storage Conditions

Elco 148 can be blended with mechanical or in-line blending equipment at temperatures not above 140°F (60°C) or below 60°F (16°C). The additive can be heated to 140°F (60°C) for unloading or transfer, but should not be stored for long periods at temperatures over 120°F (50°C).

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Performance Characteristics

Characteristics	Test Method	ISO 46 ELCO 148 0.65% wt (0.55% v)	ISO 68 ELCO 148 0.65% wt (0.55% v)
Beaker Oxidation, Sludge	Elco	None	None
Chevy Oxidation	GM	Pass	Pass
Demulsibility mL Oil-water-emulsion (min)	ASTM D 1401	40-40-0-(10)	40-40-0-(15)
Denison T6C Vane Pump Dry Phase Wet Phase	Denison	Pass Pass	
Denison Filterability 1.2 Micron Filter A – No Water B – 2% Water	Denison 600 max 2 x A, max	210 315	225 360
Foam Sequence I Sequence II Sequence III	ASTM D 892	0/0 0/0 0/0	0/0 0/0 0/0
Four Ball Wear, Scar, mm 40 kg, 1800 rpm, 135°F, 1hr	ASTM D 4172	0.53	0.53
Hydrolytic Stability Cu wt Loss, mg/cm ² TAN, Water Layer, mg KOH	ASTM D 2619	0.17 Basic	0.19 Basic
Oxidation Hrs to 2.0 NNA	ASTM D 943	2400+	2000+
Pall Filterability	Pall	Pass	Pass
Rotary Bomb Oxidation Min to 25 PSI Loss	ASTM D 2272	360	330
Steel Corrosion	ASTM D 665B	Pass	Pass
Copper Corrosion	ASTM D 130	1a	1a

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Performance Characteristics

Characteristics	Test Method	ISO 46 ELCO 148 0.65% wt (0.55% v)	ISO 68 ELCO 148 0.65% wt (0.55% v)
Sludge and Corrosion	ASTM D 4310		
Copper, mg		38.1	48.2
Iron, mg		Nil	Nil
TAN, 1000 hrs		0.5	0.7
Sludge, mg		48.2	55.3
Thermal Stability, (Proc. A) Cincinnati Machine	D 2070		
Acid No. after Test		0.67	0.57
Viscosity Change, %		2.6	3.9
Condition of Copper Rod			
- Visual, CM Color Code		2	3
- Metal Removed, mg		2.9	2.7
Condition of Steel Rod			
- Visual, CM Color Code		1	1
- Deposit, mg		0.5	0
- Metal Removed, mg		0.3	1.0
Precipitate, mg/100 mL		6.3	5.8
Vane Pump Wear	ASTM D 2882		
Dry, mg wt Loss		31.8	45.6
with 1.5% Water, mg wt Loss		15.0	
P-46 Piston Pump	Denison		
Wear		Pass	
Bronze Transfer		None	

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