



The Elco Corporation

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Elco 391 Industrial Gear Oil Additive

Features

Elco 391 is a multifunctional industrial gear additive for use in preparing premium industrial gear oils. When formulated in a suitable base stock, Elco 391 imparts these benefits:

- Extends oil life and reduces gear wear
- Exceptional EP performance
- Excellent antifoam and demulsibility characteristics
- Compatible with most seal materials
- Non-corrosive to yellow metals
- Suitable for use in Group I and II base stocks

Application

Treated at 1.5% weight (1.3% volume) in suitable base stocks, Elco 391 meets or exceeds the requirements of:

- GM LS-2
- U.S. Steel 224

Characteristics

<u>Physical</u>	<u>Typical</u>
Flash Point	95°C min
Specific Gravity	1.02 (8.5 lb/gal)
Viscosity @ 100°C	12 cSt
<u>Chemical</u>	
Phosphorus	2.3%
Sulfur	20.0%

Recommended Blending, Handling and Storage Conditions

Elco 391 can be blended with mechanical or in-line blending equipment at temperatures not above 125°F (52°C) or below 60°F (16°C). The additive can be heated to 125°F (52°C) for unloading or transfer, but should not be stored for long periods at temperatures over 100°F (38°C).

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Performance Characteristics

Characteristics	Blend 1 1.5 % wt Elco 391 in Typical US Oils	Blend 2 1.5% wt Elco 391 in South American Oils	Blend 3 2.25% wt Elco 391 in Hydro-treated (Group II) Oils
Antiwear Properties			
Four Ball Wear, ASTM D 4172 Conditions: 1800 rpm, 20 kg, 54°C, 60 min			
Wear Scar Diameter, mm	0.24	0.31	0.31
Demulsibility, ASTM D 1401			
	40/40/0 (15)	40/40/0 (20)	40/40/0 (20)
Demulsibility, ASTM D 2711			
Free Water from Funnel, mL	87.0	84.0	89.0
Free Water from Tube, mL	0.8	0.9	0.3
Total	87.8	84.9	89.3
Extreme Pressure Properties			
Timken Test, ASTM D 2782			
OK Load, lb	70	60	65
Four Ball, ASTM D 2783			
LWI, kg	50.7	52.5	46.0
Weld Load, kg	250	250	250
FZG, ASTM D 5182			
Passing Stage	12	12	12
Oxidation Stability, USS 224			
321 hrs @ 121°C, 10 Liters, Air/hr			
Viscosity Increase, %	4.1	0.6	0.9
Steel Corrosion, ASTM D 665B			
Synthetic Sea Water	Pass	Pass	Pass
Copper Corrosion, ASTM D 130			
	Pass	Pass	Pass