



The Elco Corporation

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Elco 393D Industrial Gear Oil Additive

Features

Elco 393D is a multipurpose gear additive for use in preparing premium industrial gear oils. When formulated in a suitable base stock, Elco 393D provides lubricants with high film strength and load carrying capacity. Gear teeth are protected from wear, surface distress and premature failure.

- Thermally stable – Minimal degradation. Long service life.
- High film strength - Exceptional EP performance protects against premature failure
- Advanced water separation - Excellent antifoam and demulsibility characteristics
- Rust and corrosion inhibited - Non-corrosive to yellow metals
- Suitable for use in Group I - IV base stocks

Application

Treated at 1.5% weight (1.4% volume) in suitable base stocks, Elco 393D meets or exceeds the requirements of:

- GM LS-2 Specification LR for EP gear oils
- U.S. Steel 224
- AGMA 9005

Recommended for all industrial enclosed gearing and wherever an AGMA extreme pressure lubricant is required.

Characteristics

| <u>Physical</u> | <u>Typical</u> |
|------------------|--------------------|
| Flash Point | 105°C min |
| Specific Gravity | 1.06 (8.83 lb/gal) |
| Viscosity @ 40°C | 42 cSt |
| <u>Chemical</u> | |
| Phosphorus | 0.6% |
| Sulfur | 31.5% |

Recommended Blending, Handling and Storage Conditions

Elco 393D 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).

Information contained herein is correct and accurate, to the best of The Elco Corporation's knowledge, however, Elco makes no warranty, oral or written, expressed or implied, of merchantability or fitness for a particular purpose, regarding this product or its use. Purchaser assumes all risks of use, application and handling.

Elco 393D

Industrial Gear Oil Additive

Performance Characteristics

| <u>Characteristics</u> | <u>1.5% 393D ISO 220 Group I</u> | <u>1.5% 393D ISO 220 Group II</u> | <u>1.5% 393D ISO 220 PAO With 20% Ester</u> |
|---|--------------------------------------|---------------------------------------|---|
| Antiwear Properties | | | |
| Four Ball Wear, ASTM D 4172 1800 rpm 20 kg, 54°C, 60 min Wear Scar Dia., mm | 0.32 | 0.27 | 0.27 |
| Demulsibility, ASTM D 1401 | 40/40/0 (15) | 40/40/0 (15) | 40/40/0 (10) |
| Water Separability, ASTM D 2711 | | | |
| Total Free Water, mL | 85.5 | 87.0 | 82.0 |
| Water from Funnel, mL | 84 | 86 | 86.5 |
| Water in Oil % | 0.5 | 0.4 | 0.5 |
| Emulsion, mL | 0.3 | 0.1 | 0.6 |
| Extreme Pressure Properties | | | |
| Timken Test, ASTM D 2782 | | | |
| OK Load, lb | 60 | 60 | 70 |
| Four Ball, ASTM D 2783 | | | |
| LWI, kg | 48.5 | 45.9 | 43.6 |
| Weld Load, kg | 315 | 315 | 315 |
| FZG, ASTM D 5182 | | | |
| Passing Stage A/8, 3/90 | 12 | | |
| Passing Stage A/16, 6/90 | 12 | | |
| Foam D 892 | | | |
| First Sequence | 0/0 | 0/0 | 0/0 |
| Second Sequence | 0/0 | 0/0 | 0/0 |
| Third Sequence | 0/0 | 0/0 | 0/0 |
| Oxidation Stability, D 2893B Mod. | | | |
| Viscosity Change | +4.7% | +1.6% | +1.1% |
| Sludge | None | Very slight | None |
| Phosphorous Depletion | No change | No change | No change |
| Acid Number mg KOH/g | +0.18 | +0.12 | +0.21 |
| Steel Corrosion, ASTM D 665B | | | |
| Synthetic Sea Water | Pass | Pass | Pass |
| Copper Corrosion, ASTM D 130 | | | |
| | 1A | 1A | 1A |