



## **Rugged™ Zinc-Free AW Hydraulic Oil**

**Rugged™ Zinc-Free AW Hydraulic Oil** is high quality zinc-free hydraulic oil offering excellent oxidation protection with a unique zinc-free anti-wear additive system. Rugged™ Zinc-Free AW oils is available in an ISO 46 viscosity range to meet many equipment specifications.

**Rugged™ Zinc-Free AW Hydraulic Oil** is formulated to replace conventional zinc-containing hydraulic fluids where the environment is of utmost concern.

These applications include equipment used in marine environments, parks, wild life areas, recreational areas, golf courses, etc. **Rugged™ Zinc-Free AW Hydraulic Oil** minimizes the environmental impact of accidental leaks and spills.

### **Recommended Applications:**

- Fives Cincinnati P-70 Approved
- U.S. Steel 127
- DIN 51524 Parts 2
- DIN 51506, VDL Performance also for lower grades
- Parker Hannifin (Denison) HF-0, HF-1, HF-2
- Eaton-Vickers I-286-S
- Eaton-Vickers M-2950-S
- Eaton-Vickers 35VQ24A
- German Steel Industry SEB 181222
- ISO 11158:1997, Family H (Hydraulic Systems), Type HM
- US EPA/US Coast Guard Static Sheen Test

### **Important Characteristics:**

**Rugged™ Zinc-Free AW Hydraulic Oil** is blended with selected premium quality base oils and selected additives to provide these essential characteristics:

- Biodegradable (OECD-301B).
- Contains no Zinc or other heavy metals.
- Extended oil life and pump durability.
- Antiwear and EP performance.
- Filterability and demulsibility.
- Excellent thermal and oxidation stability.

## Rugged™ Zinc-Free AW Hydraulic Oil

TYPICAL PROPERTIES		
ISO-Viscosity Grade	ASTM D-2422	<b>46</b>
Specific Gravity	ASTM D-4052	.865
Flash Point °F	ASTM D-92	464
Pour Point °F	ASTM D-97	-33
Viscosity @ 40 °C	ASTM D-445	46
Viscosity @ 100 °C	ASTM D-445	6.9
Viscosity Index	ASTM D-2270	105
ASTM Rust Test	ASTM D-665 A&B	Pass
Oxidation Test	ASTM D-943	8000
Foam, 3-sequences	ASTM D-892	Pass
Acid Number mg KOH/g	ASTM D974	0.22
Copper Corrosion	ASTM D130	1a
Demulsibility Minutes to pass	ASTM D1401	10
Dielectric Strength (at manufacture) kV	ASTM D877	35
Foam Test Seq I, mL	ASTM D892	0/0
FZG Scuffing Test – failure load stage	ASTM D5182	>12
Oxidation Stability- TOST- hours	ASTM D943	8000
Aquatic Toxicity, Rainbow Trout 1000mg/L 96h LC50	OECD 203 1-12	Non-toxic
Biodegradability in 28 days	OECD 301B, %	20-59

**A superior product by Colorado Petroleum Products Company**

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