Wear Guard AW

Heavy Duty Hydraulic Fluid

No. 306

ISO: 32, 46, 68, 100

DESCRIPTION:

Wear Guard AW is a premium quality, highly oxidation stable, anti-wear lubricant, blended from high viscosity index hydroprocessed group II base oils and specially selected additives. This lubricant can be used in a wide variety of hydraulic applications where manufacturers recommend an R&O or AW type oil. Special friction reducing and anti-oxidation additives make this an extremely long life lubricant (8,000 hour oxidation rate).

Wear Guard AW exceeds Caterpillar Tractor Company's zinc requirements for heavy-duty hydraulic fluid for use in their off road heavy haul equipment.

PERFORMANCE CHARACTERISTICS:

- **Oxidation resistant (8,000 hours in the ASTM-D943 Oxidation Test)**
  Oxidation inhibitors and premium quality base oils combine to form a product with outstanding resistance to oxidation and provide the maximum protection against varnish formation at both high and low temperatures. This feature will extend drain intervals.
- **Provides excellent anti-wear protection**
  Special anti-wear, extreme pressure and friction reducing additives provide the highest level of protection against wear and scuffing in all types of vane, piston, and gear pumps used in both low and high pressure hydraulic systems.
- **Friction reduction**
  Exclusive friction reducing additives provide reduced operating temperature and reduced horsepower requirements in comparison to conventional hydraulic oils.
- **Superior rust protection**
  Inhibitors protect both steel and yellow metal surfaces against rust and corrosion.
- **Demulsibility**
  Designed to separate rapidly from water.
- **High foam resistance**
  Foam inhibitors provide a high level of foam resistance to prevent pump starvation and damage.
- **High viscosity index**
  To insure viscosity stability
- **Superior filterability**

TYPICAL APPLICATIONS:

Recommended for use as premium anti-wear hydraulic fluid in all types of vane, gear, and piston pumps such as:

Sperry-Vickers	Cincinnati Milacron	Denison
Rexroth	Sunstrand	Towler Hydraulic
U.S. Steel		

Also recommended for use in circulating oil systems and in moderately loaded gear sets.

SUMMARY:

Hydraulic systems are constantly subjected to adverse conditions such as water, heat, long operating intervals, heating and cooling and high pressures. Each of these factors affects the ability of the hydraulic system to provide maximum output when needed. Bearing, pump, valve, gear, motor and cylinder wear are very common. Gum and varnish buildup lead to poor system performance. Oil deterioration and oxidation results not only in excessive wear, but frequent overhauls as well. Deterioration of seals and O-rings lead to increased oil consumption.
Wear Guard AW Hydraulic Oil is formulated to greatly reduce these problems and provide maximum hydraulic system efficiency.

SERVICE APPLICATIONS:

Wear Guard AW Hydraulic Oil meets and exceeds the following service requirements for hydraulic pumps:

Vickers 1-286-S, M-2950-S	Denison HF-1, HF-2, HF-0
Cincinnati Milacron P-68, P-69, P-70	General Motors LH-04-1, LH-06-01, LH-15-1
Lee Norse 100-1	Jeffrey No. 87
Ford M-6C32	U.S. Steel 127, 136
B.F. Goodrich 0152	Commercial Shearing

TYPICAL SPECIFICATIONS:

Oxidation Stability,	
TOST, ASTM D943, hr[1]	8,000+
ASTM 2266 Four Ball Wear Test	
40 KG, 1 hour @ 167° F	Scar 0.30
Corrosion test, Steel,	
(ASTM D665) Procedure B:	Pass
Foam Test ASTM D-892	
Available foam after 10 min.	Nil
Rust Test ASTM D-665 A/B	
Distilled Water	Pass-clean
Synthetic Sea Water	Pass-clean
Demulsibility Test ASTM D-1401	Pass
Denison Filterability	
TP 02100	
A. No Water (sec.)600 max.	94/97
B. 2% water (sec.)2 x A max.	149/148

ISO Grade	**32**	**46**	**68**	**100**
SAE Grade	10W	20	20	30
Viscosity @ 40º C, cSt:	32.0	46.0	64.6	95.0
Viscosity @ 100º C, cSt:	5.4	6.8	8.5	11.0
Viscosity Index:	120	120	119	118
Flash Point, COC, ºF	432	440	473	504
Pour Point, ºF:	-27	-11	-6	-6
Color, Saybolt:	+30	+30	+30	+25
API Gravity:	32.7	32.0	31.7	31.4

Values shown here are typical, and may vary.

PERFORMANCE TEST RESULTS:

		TEST REQUIREMENTS	TEST RESULTS
Vickers 35VQ-25		Pass	Pass
Denison T6-C		Pass	Pass
Min. Aniline Point	D-611	100°C-(212°F)	228°F
T.O. Rust	D-665 A/B		
A. Distilled Water		Pass	Pass – Clean
B. Synthetic Sea Water		Pass	Pass – Clear
Foam	D-892		
Allowable foam after 10 min.		None	None
Denison Filterability	TP 02100		
A. No water (sec.)		600 max.	94 / 97
B. 2% water (sec.)		2 X A max.	149 / 148
Pall Bench Filtration Factor		80 min.	104
AFNOR Filterability		Report	
No Water (min.): NF E48-690 Filterability Index			1.2
Water (min.): NF E48-691 Filterability Index			1.5
Demulsibility	D-1401		
Oil-Water-Emulsion		40-37-3 (30 min.)	40-40-0 (10 min.)
T.O. Oxidation	D-943		
Hrs. to 2.0 NNA		1,000 min.	8,000
1,000 Hr. Sludge	D-4310		
NNA, Mg KOH		2.0 max	0.06
Total Sludge, mg		200 max.	2.4
Total Copper, mg		50 max.	7.6
Total Iron, mg		50 max.	0
Hydrolytic Stability	D-2619		
NNA, water layer		4.0 max	Basic
Copper Appearance		--	1-A
Copper wt. Loss, mg/cm2		0.2 max.	0.06
FZG	DIN 51354, Part 2		
Damage Load Stage, min		Report	12 Stage
Air Release	D-3427	7 min. (ISO 46)	1.8 min
Thermal Stability			
168 Hrs., 135°C (275°F)			
Sludge (mg/100 ml), max.		100.0 mg./100 ml	10.2
Copper wt. Loss (mg), max.		10.0 mg max.	1.2
Copper Rod appearance		Report	2
Copper Strip	D-130	1B	
3 hrs. @ 100°C		max.	1A
Flash Point	D-92	190°C min.	198°C
Pour Point	D-97	-15°C max.	-15°C
Neutralization No.	D-664	1.5 max.	0.40
Seal Test	DIN 53538, Part 1		
% Volume change		0 to 12	+3
Hardness change		0 to –7	-1