



Advanced Lubricants Technology

PRODUCT INFORMATION

PERENNIAL HYDRA AWS (PREMIUM MINERAL ANTI-WEAR HYDRAULIC FLUID)

DESCRIPTION

PERENNIAL HYDRA AWS is a new generated advance technology of Premium Anti-Wear Hydraulic Fluid designed for modern high pressure severe service hydraulic systems, precision machine tools, industrial equipments and all circulating lubrication systems, assuring long life for pumps, motors.

PERENNIAL HYDRA AWS contains special ZDDP additives to impart outstanding anti-wear properties, anti-oxidation, corrosion protection, thermal stability, low sludge formation tendency and excellent demulsibility properties.

In addition, filterability tests show that **PERENNIAL HYDRA AWS** has outstanding resistance to the formation of deposits and sludge, even in the presence of water, **PERENNIAL HYDRA AWS** allowing a greater level of oil volume to flow through the filter than conventional hydraulic oils.

PERENNIAL HYDRA AWS has outstanding thermal stability even in the presence of metals such as copper and iron which are known to act as catalysts. This results in an extended oil operating life, reduction in lubricant consumption and lower waste oil disposal cost.

PERENNIAL HYDRA AWS also has the least acidity and copper weight loss. This means **PERENNIAL HYDRA AWS** has excellent lubricant performance even in the presence of water contamination and hence, longer oil operating life.

PERENNIAL HYDRA AWS has an oxidation stability life of 2600+ hours and meets the general industrial specifications of :

- Abex-Denison HF-0, HF-1, HF-2 for both piston and vane pumps
- Cincinnati Milacron P-68, P-69, P-70 anti-wear hydraulics
- Sperry-Vickers vane pump test, M-2950-S mobile hydraulics and I-286-S industrial hydraulics
- CLP according to DIN 51517 part-3/ HLP according to DIN 51524 part-2
- U.S. Steel 136, 127/AFNOR NFE 48603 (HM)/Muller Weingarten



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TYPICAL INSPECTION TESTS

Grade, ISO VG	10	22	32	46	68	100
Density, g/ml @ 15°C	0.845	0.866	0.876	0.880	0.883	0.887
Colour ASTM	L1.5	L2.0	L2.0	L2.5	L3.0	L3.0
Flash Point, COC, °C	166	185	210	220	225	230
Pour Point, °C	-30	-25	-24	-24	-24	-21
Viscosity, cSt @ 40°C	10	22	32	45	68	102
cSt @ 100°C	2.8	4.5	6.0	6.9	8.5	10.5
Viscosity Index	100	105	105	105	105	105
Denison T-6C Vane Pump, 305 hrs						
T.Wt Loss, vane & piston, dry phase, mg	-	-	-	5.6	-	-
T.Wt. Loss, vane & pistons, wet phase, mg	-	-	-	1.1	-	-
Denison P-46 Piston Pump, A. TP30283A	-	-	-	pass	-	-
Vickers 35VQ-25 Vane Pump						
Ring Weight Loss, mg	-	-	-	8.3	-	-
Vane Weight Loss, mg	-	-	-	5.3	-	-
Total Weight Loss, mg	-	-	-	13.3	-	-
Vickers V-104 C Vane Pump						
ASTM D2882, DIN 51389, part 2, mg	-	-	-	48.4	-	-
Oxidation Tests, Turbine Oil Oxidation						
ASTM D-943 time to 2.0 TAN, hrs	-	-	-	> 2500	-	-
1000 hrs Sludge ASTM D 4310						
TAN, mg/KOH	-	-	-	0.59	-	-
Insoluble sludge, mg	-	-	-	56	-	-
Total copper, mg	-	-	-	49	-	-
Total iron, mg	-	-	-	3.8	-	-
Rotary Bomb ASTM D 2272						
Time to 25 psi loss, min	-	-	-	250	-	-
Rust Test ASTM D 665						
Distilled Water	-	pass	pass	pass	pass	pass
Synthetic Sea Water	-	pass	pass	pass	pass	pass
Hydrolytic Stability ASTM D 2619						
TAN, mg/KOH	0	0	0	0	0	0
Cu wt.loss, mg/cm ²	-	-	-	0.1	-	-
Thermal stability, Cincinnati Milacron, Procedure A, 168 h/275 °F						
Viscosity change, %	<5	<5	<5	<5	<5	<5
Neutralization No, mgKOH/g	0.7	0.7	0.7	0.7	0.7	0.7
Sludge, mg/100ml	none	none	none	none	none	none
Copper wt.loss, mg	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Copper rod appearance	1	1	1	1	1	1
Iron rod appearance	1	1	1	1	1	1
Filterability Dension TP 02100						
No water	-	-	-	290	-	-
2 % water	-	-	-	390	-	-
Air release, DIN 51381, min	5	5	5	6	6	6
FZG Gear Test DIN 51354 A/8.3/90	12	12	12	12	12	12
4 Ball Test DIN 52350/3	0.42	0.42	0.42	0.42	0.42	0.42
Demulsibility ASTM D1401	15	15	15	15	15	15
Seal Compatibility DIN 53521						
Change in volume	5.1	5.1	5.1	5.1	5.1	5.1
AFNOR wet filterability test NFE48691	1.0	1.0	1.0	1.0	1.0	1.0
Foam Test, ASTM D 892	Pass	Pass	Pass	Pass	Pass	Pass
Copper Strip Corrosion 3Hrs @ 100°C	1a	1a	1a	1a	1a	1a



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OUTSTANDING FUNCTIONAL CHARACTERISTICS

PERENNIAL HYDRA AWS saves you money by helping to protect components from wear which lead to costly downtime and replacement of parts.

PERENNIAL HYDRA AWS saves you money by keeping the temperature of the system to an optimum level by minimizing heat generated by internal friction. Therefore, the life time of the oil is extended which reduces the overall cost of lubricant purchases and used oil disposal.

PERENNIAL HYDRA AWS provides you with peace of mind, ensuring the system is protected by an internationally approved product which is recognized by the leading OEM's of hydraulic equipment.

1. Wear Protection

PERENNIAL HYDRA AWS oils effectively protect against wear in high pressure pumps. This oils exceed the antiwear and oxidations requirements of major pump and machine manufacturers' approval tests, including Cincinnati Milacron and Sperry-vickers.

2. Thermal Stability

All hydraulic systems have areas of high temperature which can accelerate oil degradation. **PERENNIAL HYDRA AWS** resist the adverse effects of hot spots and prolong the effective life of the oil and hydraulic system by controlling the formation of sludge and by dispersing insolubles. Whatever insolubles occur in service are easily and efficiently filtered. However clay filters should not be used because they will remove additives.

3. Hydrolytic Stability

PERENNIAL HYDRA AWS provide exceptional protection from filter plugging caused by gel formation if the oil is contaminated with small amounts of water.

4. Rust Protection

Gross quantities of water in any hydraulic system designed for oil should be carefully avoided. In case water does get into the system, These oils protect the highly polished control areas against rusting. In addition, the small amount of oil which passes the seals during movement of the pistons will protect any push rods or actuators which are exposed to the elements.

5. Demulsibility

PERENNIAL HYDRA AWS oils possess excellent water separating characteristics, thereby minimizing emulsions which can cause severe lubrication problems.

6. Corrosion Protection

Most hydraulic systems have bronze or brass parts. **PERENNIAL HYDRA AWS** oils protect these parts from staining and chemical attack.

7. Foam Resistance

PERENNIAL HYDRA AWS oils resist foam buildup in the system and reservoir. Thus, pump starvation and damage is prevented and precise control for position and flow rate is assured.

8. Low Pour Point

The low viscosity grades of oils have excellent low temperature properties for cold start-ups of hydraulic systems.

The above details is typical and does not constitute a contract in terms of properties