



HYDREX™ AW Hydraulic Fluids

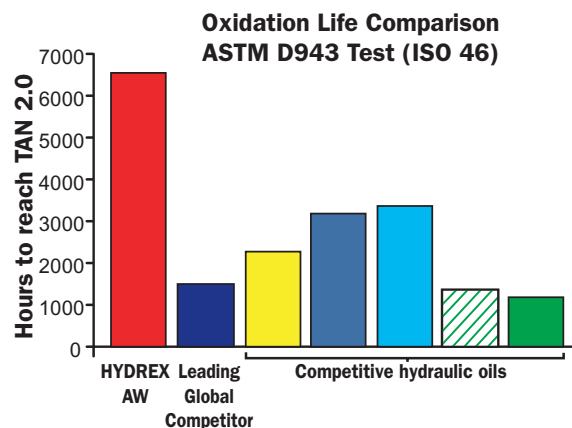
Introduction

Petro-Canada's HYDREX™ AW hydraulic fluids are advanced formula, long life, anti-wear fluids designed for high performance hydraulic systems to provide excellent operating and maintenance benefits for increased productivity. HYDREX AW takes your equipment to higher levels of performance.

HYDREX AW hydraulic fluids start with the patented HT purity process to produce 99.9% pure, crystal clear base oils. By removing the impurities that can hinder the performance of competitive conventional oils, and blending in our specialty additives, HYDREX AW retains its 'fresh oil' properties longer providing resistance to oxidative breakdown and outstanding wear protection.

Features and Benefits

- **Outstanding oxidation and thermal stability**
 - Longer oil life which helps extend drain intervals for reduced change-out costs and less reservoir exposure to external contaminants
 - Resists degradation (breakdown) in high temperatures reducing need for additive top up



HYDREX AW lasts 3x longer than the leading global competitor

- Decreases varnish build up that can interfere with servo and directional valve operation
- Minimizes harmful sludge build up in the reservoir that can lead to shortened oil life and equipment wear



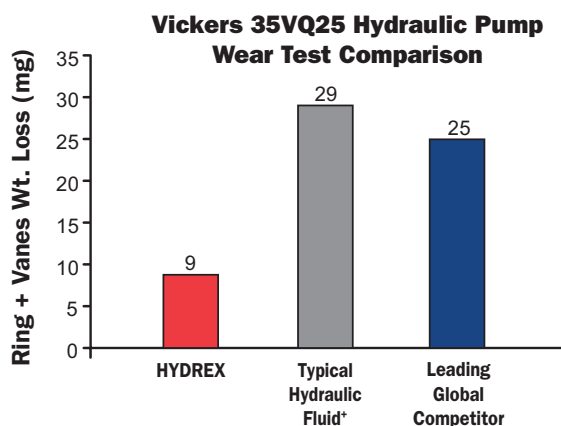
HYDREX AW 46
2,684 Hrs



Leading Global
Competitor 32
1,844 Hrs

HYDREX demonstrates significantly lower sludge formation – even at longer test hours – reflecting outstanding oil quality†

- **Exceptional anti-wear protection**
 - Extends equipment life
 - Reduces maintenance and mechanical failure
 - Protects equipment being driven longer, harder and faster in tougher conditions
 - Improves operating reliability over a wide range of pressure



* Average of 13 products tested

HYDREX provides 2x better wear protection than the leading global competitor.

What is the HT difference?

Petro-Canada starts with the patented HT purity process to produce water-white, 99.9% pure base oils. The result is a range of lubricants, specialty fluids and greases that deliver maximum performance for our customers.



† Based on modified ASTM D943 (although ASTM D943 does not typically involve fluid filtering, these samples were exposed to similar conditions as test ASTM D4310 which determines sludging and corrosion tendencies of oils).

- **Improved rust and corrosion prevention**
 - Iron and other metal components protected against water damage
- **Excellent water separability and hydrolytic stability allows oil to be reused**
 - Oil separates readily from water without loss of performance additive
- **Improved foam and air entrainment performance**
 - Prevents overflowing of reservoirs
 - Eliminates “sponginess” from hydraulic systems and prevents pump cavitation

Applications

HYDREX AW hydraulic fluids are primarily recommended for heavy duty hydraulic systems that operate in industrial plants and outdoors in mobile equipment. HYDREX AW fluids may be used in systems equipped with fine filters down to 3 microns without loss of additives or causing filter plugging.

Because of their wide applicability, long life, rust and foaming inhibiting features, HYDREX AW fluids may also be used to lubricate anti-friction bearings and gears found in circulation, splash, bath and ring-oiled systems.

HYDREX AW fluids are approved against the following hydraulic equipment manufacturers' specifications:

- Denison HF-0
- Eaton Vickers M-2950-S and I-286-S
- Cincinnati-Machine P-68 (AW 32), P-69 (AW 68) and P-70 (AW 46)
- Hagglunds AC-4.8
- Bosch-Rexroth
- Marlen Hydraulic Power Units (AW 68)

HYDREX AW fluids are recommended for use in equipment manufactured by Eaton Vickers, Hagglunds, Denison, Sauer-Danfoss, Bosch-Rexroth, Racine, Oilgear, Hydreco, Dynex and others.

HYDREX AW 46 is recommended for use in the following injection moulding equipment manufacturers: Husky, Krauss-Maffei, Battenfeld, Demag, Soplar, Engel, and Nestal.

HYDREX AW 32, 46, and 68 are GMLS2 approved, and are classified as CFIA Type N2. HYDREX 22, 32, 46, 68, and 100 are classified as NSF International H2.

HYDREX is suitable for use where the following specifications are required:

- DIN 51524 Part 1 HL (AW 22)
- DIN 51524 Part 2 HLP (AW 32, 46, 68, 80, and 100)
- ISO 6743/4 Type HM
- USS 127

Typical Performance Data

PROPERTY	TEST METHOD	HYDREX AW					
HYDREX Viscosity Grade	–	22	32	46	68	80	100
Flash Point, °C / °F	D92	207/405	217/423	227/441	225/437	245/473	250/482
Viscosity, cSt @ 40°C	D445	21.6	31.5	45.7	67.6	80	100
cSt @ 100°C		4.3	5.3	6.7	8.9	9.7	11.3
SUS @ 100°F		106	151	219	350	389	440
SUS @ 210°F		40	43	49	56	60	63
Viscosity Index	D2270	101	98	100	105	99	99
Pour Point, °C / °F	D5950	-45/-49	-39/-38	-36/-33	-33/-27	-24/-11	-30/-22
Rust Procedures A & B, 24 hr	D665	Pass	Pass	Pass	Pass	Pass	Pass
Oxidation Stability, hours	D943	6500+	6500+	6500+	6500+	6500+	6500+
Oxidation Stability, mg sludge	D4310	Pass	66	71	Pass	Pass	Pass
Hydraulic Stability, copper loss, mg/cm ²	D2619	Pass	0.17	0.10	Pass	Pass	Pass
Dielectric Breakdown, Voltage, kV	D877	44	39	40	44	44	44
Four-Ball Wear Test, Scar Diam. (mm) 40 kg, 1200 rpm, 54°C, 1 hr	D4172	0.5	0.4	<0.4	<0.4	<0.4	<0.4
Water Separability, 54°C / 129°F mL water (minutes)	D1401	40-40-0 (10)	40-40-0 (25)	40-40-0 (10)	40-40-0 (20)	40-38-2 (30)	40-40-0 (5) ¹

The values quoted above are typical of normal production. They do not constitute a specification.

¹ At 82°C (180°F)

Health and Safety

To obtain Material Safety Data Sheet (MSDS), contact one of Petro-Canada's TechData Info Lines.

TechData Info Lines

If you would like to know more about Petro-Canada's HYDREX AW Hydraulic Fluid, or any other product in our complete line of quality lubricants, please contact us at:

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