



HYDREX™ AW Hydraulic Fluids

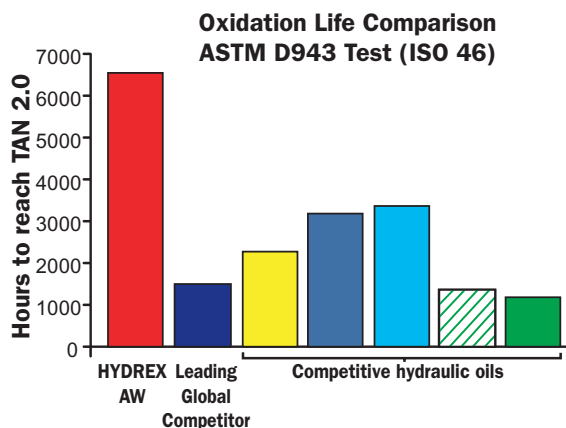
Introduction

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 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.

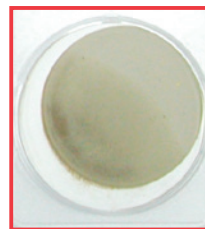
Features and Benefits

- **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

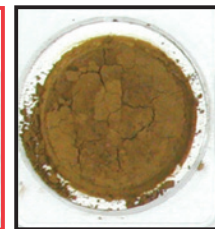


HYDREX AW lasts 3x longer than the leading global competitor

- 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



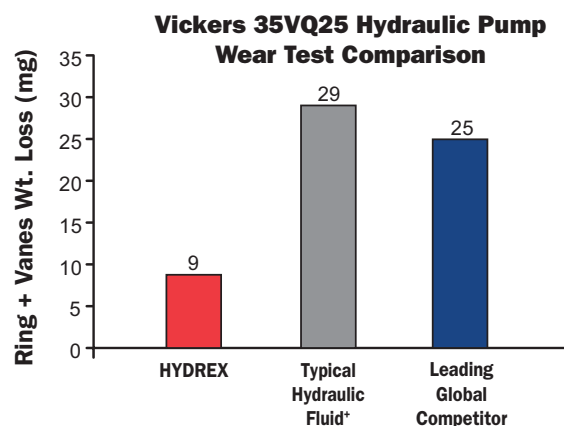
HYDREX AW 46
2,684 Hrs



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 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 (AW 32, 46, 68)
- Eaton/Vickers M-2950-S and I-286-S
- MAG (formerly Cincinnati Machine) P-68 (AW 32), P-69 (AW 68) and P-70 (AW 46)
- Komatsu (AW 32, 46)
- Bosch-Rexroth RD 90220 (AW 22, 32, 46, 68, 100)
- Marlen Hydraulic Power Units (AW 68)

HYDREX AW fluids are recommended for use in equipment manufactured by Eaton Vickers, Denison, Komatsu, 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, Soplax, and Netstal.

HYDREX AW 46 is approved for use in Engel Injection Moulding Machines.

HYDREX AW is approved as per the following:

- HYDREX AW 32 Voith 3625-006072, 3625-006073 and 3625-008426
- HYDREX AW 46 Voith 3625-006208 and 3625-006209
- HYDREX AW 100 Voith 3625-006101

HYDREX AW fluids are classified as CFIA Type N2 and NSF International H2.

HYDREX AW 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, and 100)
- ISO 6743/4 Type HM
- USS 127

Typical Performance Data

PROPERTY	TEST METHOD	HYDREX AW					
		22	32	46	68	80	100
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	34.5	46.6	65.7	80.0	100
cSt @ 100°C		4.3	5.7	6.9	9.4	9.7	11.3
SUS @ 100°F		113	178	240	338	416	521
SUS @ 210°F		40.5	45.0	49.0	57.6	58.7	64.6
Viscosity Index	D2270	105	104	103	122	99	99
Pour Point, °C / °F	D5950	-45/-49	-39/-38	-33/-27	-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 ² , mg sludge	D4310	Pass	Pass	Pass	Pass	Pass	Pass
Hydrolytic Stability ² , copper loss, mg/cm ²	D2619	Pass	Pass	Pass	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, 75°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 (20)	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)

² Pass is defined as meeting the requirement of the Denison HF-0 specification. Oxidation Stability - 0.2 max and Hydrolytic Stability - 100 max.

Health and Safety

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

TechData Info Lines

To place an order, please call a Customer Order Management Representative at :

Canada (English) Phone 1-800-268-5850
(French) Phone 1-800-576-1686
United States Phone 1-877-730-2369
Latin America Phone +1-416-730-2369
Europe Phone +1-416-730-2389
Asia Phone +1-416-730-2372
China Phone +86 (21) 6362-0066

You can also e-mail us at lubecsr@suncor.com



To learn more about how Petro-Canada Lubricants, specialty fluids, oils and greases can help maximize your equipment performance, savings and productivity, please contact us at :

North America Phone 1-866-335-3369
Europe Phone +44 (0) 121-781-7264
Germany Phone +49 (0) 201 726-2913
Latin America Phone +1-416-730-2369
Asia Phone +1-416-730-2372
China Phone +86 (21) 6362-0066
Email sales@suncor.com

Visit us on the web at lubricants.petro-canada.ca