

HYDREX™ AW HYDRAULIC FLUIDS

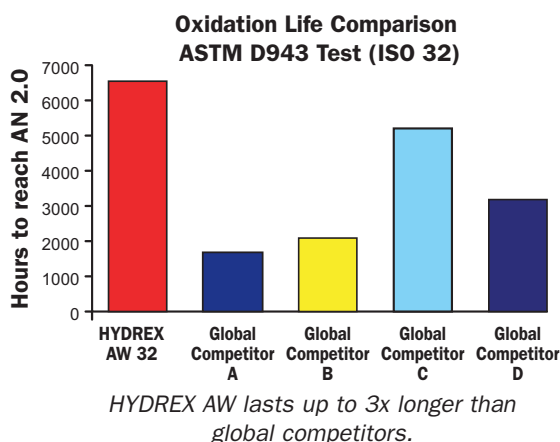
Introduction

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 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

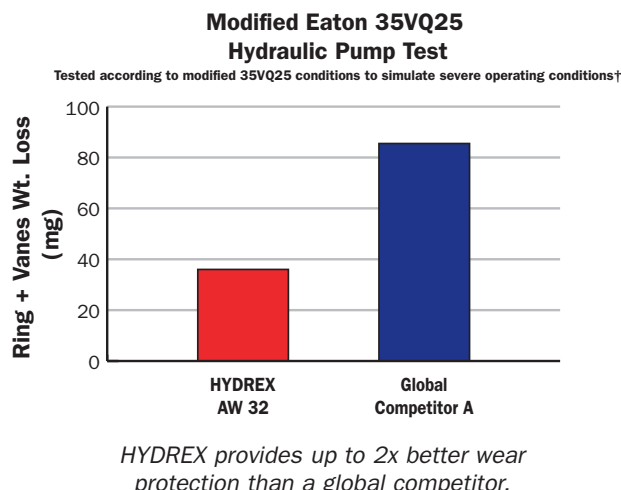
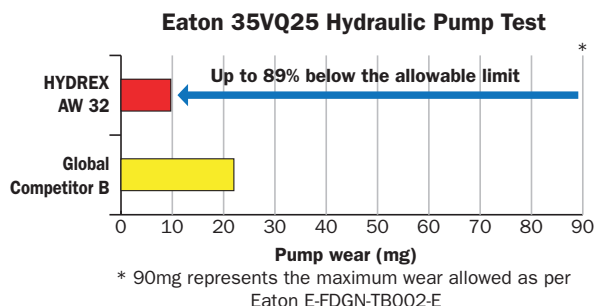
- **Outstanding oxidation and thermal stability**
 - Longer oil life which helps extend drain intervals for reduced change-out costs and less reservoir exposure to external contaminants
 - Resists degradation (breakdown) in high temperatures reducing need for oil top up



- Prevents 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, more frequent filter changes, and equipment wear (see inset on the next page)

• 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 pressures



†Test duration: 100 h/cartridge; Outlet pressure: 3200 psig;
Inlet temperature: 104 °C (220 °F)
Four ASTM D943 copper & iron coils added to reservoir for 200 h

What is the HT difference?

Petro-Canada Lubricants 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.



- **Improved rust and corrosion prevention**
 - Iron and other metal components are 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 helps prevent 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:

- Eaton E-FDGN-TB002-E (AW 22, 32, 46, 68, and 100)
- Denison HF-0 (AW 32, 46, 68)
- Fives Cincinnati P-68 (AW 32), P-69 (AW 68) and P-70 (AW 46)
- Successfully evaluated against Bosch Rexroth requirements and meets former RE 90220 specification
- Marlen Hydraulic Power Units (AW 68)

HYDREX AW 46 is approved for use in Engel injection moulding machines.

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: Husky, Krauss-Maffei, Battenfeld, Demag, Soplar, and Netstal.

HYDREX AW 46 is recommended for use in Raymond lift trucks and forklifts.

HYDREX AW is recommended 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 NSF H2 listed (no allowable food contact).

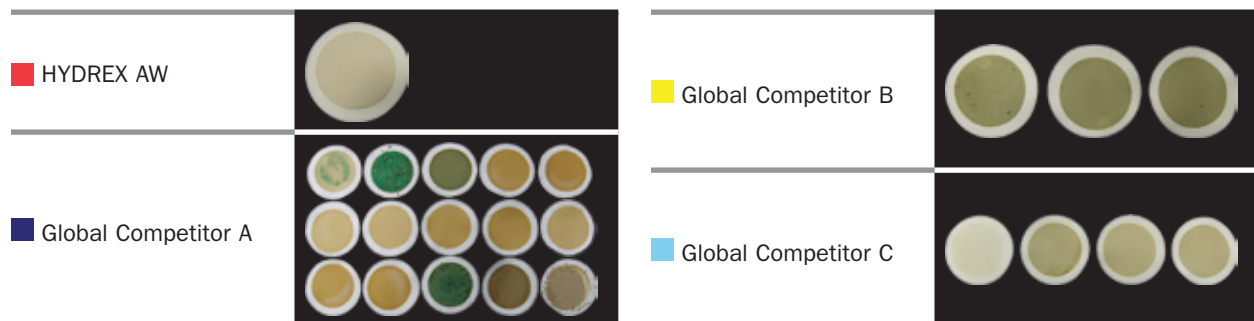
HYDREX AW meets the following specifications:

- DIN 51524 Part 2 HLP (AW 22, 32, 46, 68, and 100)
- ISO 11158 HM (AW 22, 32, 46, 68, and 100)
- Komatsu HPV35+35 pump test (AW 46)
- ASTM D6158 HM (AW 22, 32, 46, 68, and 100)

HYDREX AW 32, 46, and 68 are suitable for use where AIST 126 and 127 are required. HYDREX AW 46 is suitable for use where JCMAS HK is required.

Industry-Leading Sludge Protection

Extended ASTM D4310 (2,000 hours)**



By limiting sludge formation, HYDREX dramatically reduces associated maintenance and filter changes.

**Standard Test Method for Determination of Sludging and Corrosion Tendencies of Inhibited Mineral Oils

Typical Performance Data

PROPERTY	TEST METHOD	HYDREX AW					
HYDREX Viscosity Grade	–	22	32	46	68	80	100
Flash Point, COC, °C / °F	D92	196/385	206/403	236/457	242/468	258/496	266/511
Kinematic Viscosity, cSt @ 40°C	D445	22.0	31.5	46.4	67.4	79.4	101
cSt @ 100°C		4.4	5.5	6.9	8.9	9.9	11.6
SUS @ 100°F		115	163	239	349	412	526
SUS @ 210°F		41	44	49	56	59	66
Viscosity Index	D2270	110	110	104	106	104	102
Pour Point, °C / °F	D5950	-45/-49	-43/-45	-39/-38	-33/-27	-31/-24	-29/-20
Rust Procedures A & B, 24 hr	D665	Pass	Pass	Pass	Pass	Pass	Pass
Oxidation Stability, hours to 2.0 AN	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, kV	D877	44	39	40	44	44	44
Four-Ball Wear Test, Scar Diam. (mm) 40 kg, 1200 rpm, 75°C, 1 hr	D4172B	0.6	0.6	0.6	0.6	0.6	0.6
Water Separability, 54°C / 129°F oil-water-emulsion (minutes)	D1401	40-40-0 (15)	40-40-0 (5)	40-40-0 (15)	40-40-0 (10)	40-40-0 (15)	40-40-0 (10) 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 or Eaton E-FDGN-TB002-E specification. Oxidation Stability (D4310) 100 mg max sludge; Hydrolytic Stability (D2619) Copper Loss 0.2mg/cm² max.

To order product or to learn more about how Petro-Canada Lubricants
can help your business visit: **lubricants.petro-canada.com**
or contact us at: **lubecsr@petrocanadalsp.com**



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