PETRO-CANADA LUBRICANTS
AN HF SINCLAIR BRAND

TECH DATA
HYDREX™ AW
HYDRAULIC FLUIDS

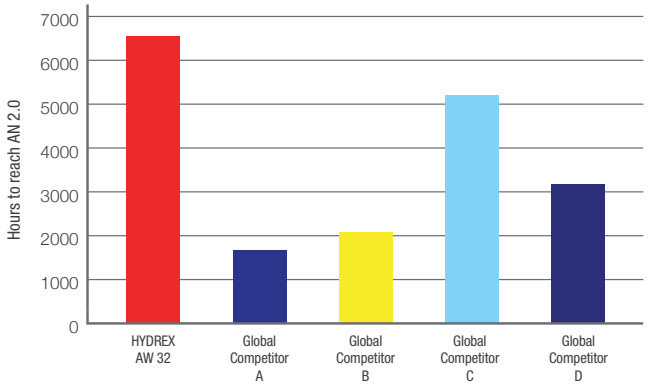
INTRODUCTION

Petro-Canada Lubricants 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 are formulated with highly refined, high quality base oils and specially selected additives that provide resistance to oxidative breakdown and outstanding wear protection.

FEATURES AND BENEFITS

Outstanding oxidation and thermal stability

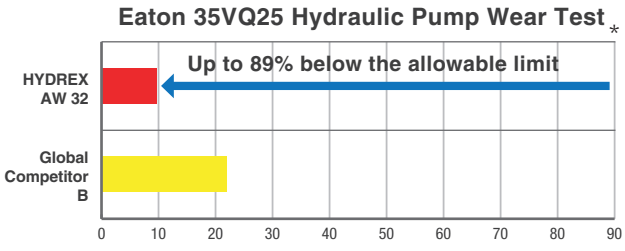
- Resists degradation and breakdown in high temperatures and offers longer oil life
- Extends drain intervals with longer oil life and reduces the need for oil top-ups and change-outs
- Prevents varnish build up that can interfere with servo and directional valve operation
- Minimizes harmful sludge 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)



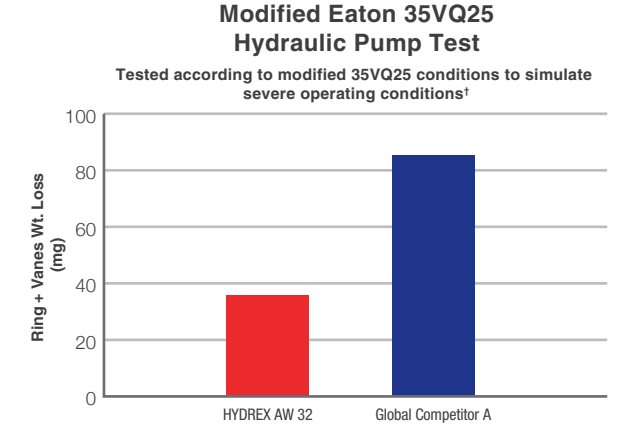
HYDREX AW lasts up to 3x longer than global competitors.

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 operating conditions



* 90mg represents the maximum wear allowed as per Eaton E-FDGN-TB002-E



HYDREX provides up to 2x better wear protection than a global competitor.

†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

Improved rust and corrosion prevention

- Protects metal components against rust and corrosion resulting from water contamination are protected against water damage

Excellent water separability and hydrolytic stability allows oil to be reused

- Separates readily from water to protects against rust and prevent oil degradation and loss of performance

Improved foam and air entrainment performance

- Protects against pump cavitation
- Increases responsiveness of the the hydraulic system and eliminates sponginess

APPLICATIONS

HYDREX AW hydraulic fluids are primarily recommended for heavy duty hydraulic systems that operate in industrial plants and outdoors in mobile equipment.

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 32, 46 and 68 are successfully rated and approved against the following hydraulic equipment manufacturers' specifications:

- Bosch Rexroth Fluid Rating List RDE 90245
- Denison HF-0, HF-1 and HF-2
- Danfoss (Formerly Eaton) E-FDGN-TB002-E

HYDREX AW fluids are also suitable for use in equipment manufactured by Komatsu, Dynex, Hydreco, Oilgear, Marlen and others.

HYDREX AW 46 is formally approved by Arburg and is designed to provide optimum performance in injection moulding equipment manufactured by Engel, Husky, Krauss-Maffei, Battenfeld, Demag, Soplar and Netstal.

HYDREX AW fluids (AW 22, 32, 46, 68, and 100) meet the following industrial standards:

- ISO 11158 HM
- DIN 51524 Part 2 HLP
- ASTM D6158 HM

HYDREX AW fluids are also suitable for use where below specifications are required:

- JCMAS HK (AW 32 and 46)
- AIST 126 and 127 (AW 32, 46 and 68)
- Fives Cincinnati P-68 (AW 32), P-70 (AW 46) and P-69 (AW 68)
- Voith 3625-006072, Voith 3625-006073, Voith 3625-008426 (AW 32)
- Voith 3625-006208 and 3625-006209 (AW 46)
- Voith 3625-006101(AW 100).

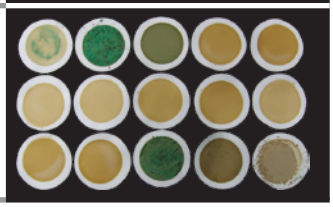
HYDREX AW fluids are NSF H2 registered (no allowable food contact).

Industry-Leading Sludge Protection

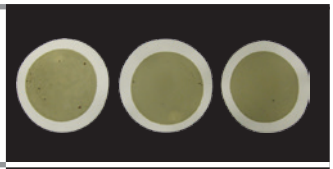
Extended ASTM D4310 (2,000 hours)**

HYDREX AW

Global Competitor A



Global Competitor B



Global Competitor C

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 cSt @ 100°C SUS @ 100°F SUS @ 210°F	D445	22.0 4.4 115 41	31.5 5.5 163 44	46.4 6.9 239 49	67.4 8.9 349 56	79.4 9.9 412 59	101 11.6 526 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/cm^2 max.

Learn more about us: **petrocanadalubricants.com**
Contact us: **lubecsr@hfsinclair.com**

Committed to the disciplined operation of our business.

CERTIFIED
ISO 9001: 2015
ISO 14001: 2015
IATF 16949: 2016

Petro-Canada Lubricants Inc.
2310 Lakeshore Road W. Mississauga, Ontario, Canada L5J 1K2
petrocanadalubricants.com

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