Petro-Canada

TechData

HYDREX™ MV
Wide Temperature Range Hydraulic Fluids

Introduction

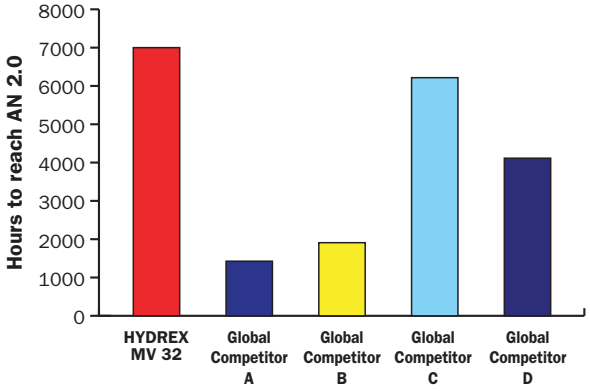
Petro-Canada's HYDREX™ MV hydraulic fluids are advanced formula, long life, anti-wear fluids designed for use in hydraulic systems exposed to wide temperature ranges. HYDREX MV provides excellent operating and maintenance benefits for increased productivity and energy efficiency.

HYDREX MV 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 MV retains its 'fresh oil' properties longer providing resistance to oxidative breakdown and outstanding wear protection in wide temperature ranges.

Features and Benefits

- **Seasonal use under wide temperature ranges**
  - Increased equipment precision and responsiveness
  - Better protection from wear in low and high temperatures
  - Reduced inventory for greater operational efficiencies and less chance of misapplication
- **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
  - 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 and equipment wear

Oxidation Life Comparison
ASTM D943 Test (ISO 32)

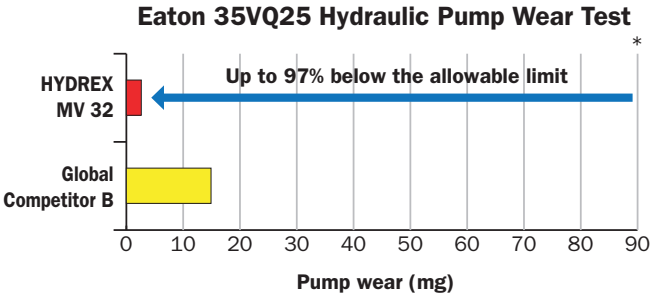


HYDREX MV lasts up to 3x longer than global competitors

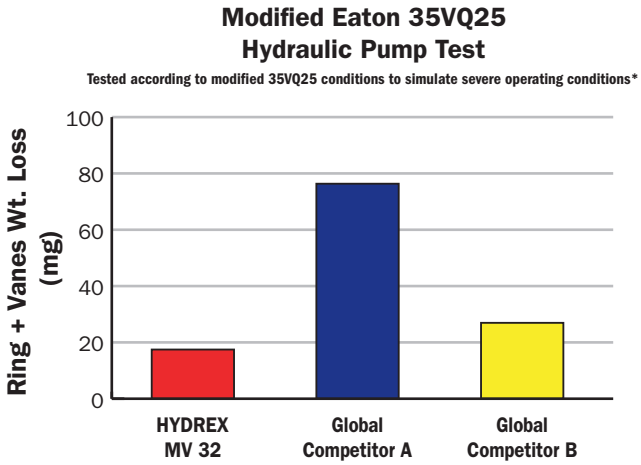
What is the HT difference?

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.

- **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

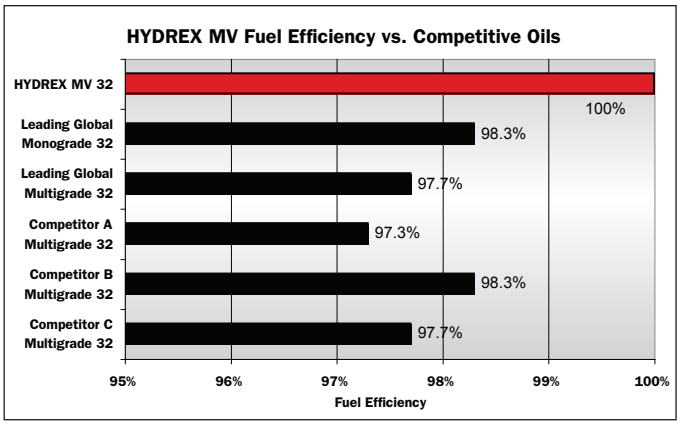


* 90mg represents the maximum wear allowed as per Eaton E-FDGN-TB002-E



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

- **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 additives
- **Improved foam and air entrainment performance**
  - Prevents overflowing of reservoirs
  - Eliminates “sponginess” from hydraulic systems and prevents pump cavitation
- **High after-shear Viscosity Index to maintain optimal viscosity at operating temperatures**
  - Increased pump efficiency in outdoor applications
  - Lower diesel fuel consumption for same amount of energy consumed, or increased equipment productivity
  - Reduced carbon dioxide (CO_2) emissions



HYDREX MV 32 provides better fuel efficiency vs. leading competitive hydraulic oils, given the same amount of energy consumed

The chart demonstrates the relative fuel efficiency between HYDREX MV 32 and competitor products (HYDREX MV 32 represents a benchmark, and does not imply 100% fuel efficiency). Comparison based on after shear viscosities in Denison T6CM pump - B10 cartridge 2000 rpm, 200 bar, 70°C (158°F).

*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

Applications

Petro-Canada's HYDREX MV hydraulic fluids are recommended for wide temperature use in piston, gear and vane hydraulic pumps found on industrial machinery and mobile equipment. HYDREX MV offers minimal fluid friction at low start-up temperatures and provides the correct viscosity at high operating temperatures. HYDREX MV may be used in systems equipped with fine filters down to 3 microns without loss of additives or filter plugging.

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

- Eaton E-FDGN-TB002-E
- Denison HF-0 (MV 32, 46, and 68)
- Fives Cincinnati P-68 (MV 32) and P-70 (MV 46)
- Successfully evaluated against the latest Bosch Rexroth requirements

HYDREX MV meets the following specifications:

- ISO 11158 HV
- DIN 51524 Part 3 HVLP
- ASTM D6158 HV
- JCMAS HK and the requirements of Komatsu HPV35+35 pump test (MV 46)

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

HYDREX MV 32, 46 and 68 are suitable for use where AIST 126 and 127 are required.

Typical Performance Data

PROPERTY	TEST METHOD	HYDREX MV			
		MV 22	MV 32	MV 46	MV 68
Start-up Temperature[1], °C/°F	–	-44/-47	-37/-35	-31/-24	-24/-11
Operating Temperature Range[2], °C/°F	–				
Mobile Equipment		-22 to 64 / -8 to 147	-17 to 76 / 1 to 169	-13 to 86 / 9 to 187	-5 to 96 / 23 to 205
Industrial Machinery		-22 to 55 / -8 to 131	-17 to 66 / 1 to 151	-13 to 76 / 9 to 169	-5 to 86 / 23 to 187
Kinematic Viscosity, cSt @ 40°C	D445	22.2	31.9	45.4	68.2
cSt @ 100°C		5.0	6.2	8.1	10.5
SUS @ 100°F		115	163	231	349
SUS @ 210°F		43	47	53	62
cP @ -35°C (-31°F)	D2983	–	–	–	60,900
cP @ -40°C (-40°F)		6,260	15,150	41,000	–
Viscosity Index	D2270	160	147	153	142
Flash Point, COC, °C/°F	D92	222/432	236/457	256/493	230/446
Pour Point, °C/°F	D5950	-54/-65	-51/-60	-48/-54	-42/-44
Oxidation Stability, hours to 2.0 AN	D943	7000+	7000+	7000+	7000+
Oxidation Stability[3], mg sludge	D4310	Pass	Pass	Pass	Pass
Rust, Procedures A & B, 24 hr	D665	Pass	Pass	Pass	Pass
Hydrolytic Stability[3], copper loss, mg/cm^2	D2619	Pass	Pass	Pass	Pass
FZG Failure Load Stage	D5182	11	11	12	12
Dielectric Breakdown, kV	D877	58	51	48	48
Four-Ball Wear Test, Scar Diam. (mm) 40 kg, 1200 rpm, 75°C, 1hr	D4172B	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(10)	40-40-0(20)	40-40-0(10)

[1]Start-up is defined by the temperatures at which the oil viscosity is 10,000 cP.

[2]Operating temperature limits are determined by the equipment manufacturer. Petro-Canada has chosen to define the upper operating temperature to be the after-shear oil viscosity of 10 cSt for mobile equipment and 13 cSt for industrial machinery, and the lower operating temperature to be the fresh oil viscosity of 750 cP for both mobile and industrial machinery.
These ranges are only an approximation and the operator should always check the viscosity requirements as specified by their equipment manufacturer. Please refer to TB-1290 for more information on lubricant & hydraulic fluid shear stability.Mobile equipment typically refers to machinery that encompasses a transmission and braking system to allow and prohibit movement. Industrial machinery is typically stationary, with hard piping and auxilliary components in place.

[3]Pass is defined as meeting the requirement of the Denison HF-0 specification. Oxidation Stability (D4310) 100 mg max sludge; Hydrolytic Stability (D2619) Copper Loss 0.2mg/cm^2 max.

Health and Safety

To obtain Material Safety Data Sheets (MSDS), contact one of our TechData Info Lines.

TechData Info Lines

If you are an existing customer looking to place an order, please call a Customer Order Management Representative at:

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Latin America/Europe/Asia ..... Phone +1-866-957-4444

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

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ISO 14001
ISO/TS 16949

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