



## HYDREX\* XV ALL SEASON HYDRAULIC FLUID

### Introduction

Petro-Canada's HYDREX\* XV hydraulic fluid is an advanced formula, long life, anti-wear fluid designed for all season use in heavy duty hydraulic systems. HYDREX XV provides excellent operating and maintenance benefits for increased productivity in very hot or cold temperatures. HYDREX XV takes your equipment to higher levels of all-season performance.

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

### Features and Benefits

- **All Season Performance**
  - Allows hydraulic systems to start at temperatures as low as -40°C (-40°F) and run as high as +79°C (+174°F)<sup>±</sup>
  - Shorter warm-up time on cold days and faster, smoother response for hydraulic systems
  - Extra protection from wear during periods of extreme high temperatures for greater peace of mind
- **Consolidate to one product all year long**
  - Inventory consolidation to just one fluid for reduced costs and less chance of misapplication
  - Protects against equipment failure during the wide temperature swings of spring and fall and eliminates chance of damage due to missed seasonal oil changes

### Consolidate with HYDREX XV

Winter	Summer
ISO 22, 32 Hydraulic Oils	ISO 46, 68 <sup>†</sup> Hydraulic Oils



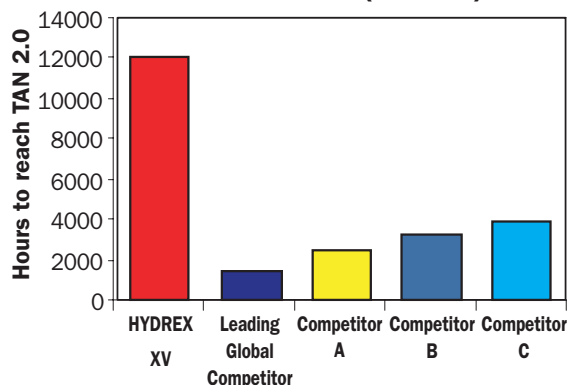
### HYDREX XV

*Reduce downtime, inventory costs, and misapplications by consolidating to HYDREX XV*

<sup>†</sup> Up to operating temperatures of 75°C (167°F)

- **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
  - Minimizes sludge build up in the reservoir that can lead to wear and shorten filter life
  - Decreases varnish build up that can interfere with servo and directional valve operational

### Oxidation Life Comparison ASTM D943 Test (ISO 46)



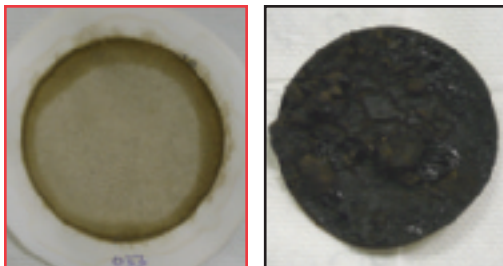
*HYDREX XV lasts over 3x longer than the leading global competitor.*

### 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.



- Minimizes harmful sludge build up in the reservoir that can lead to shortened oil life and equipment wear



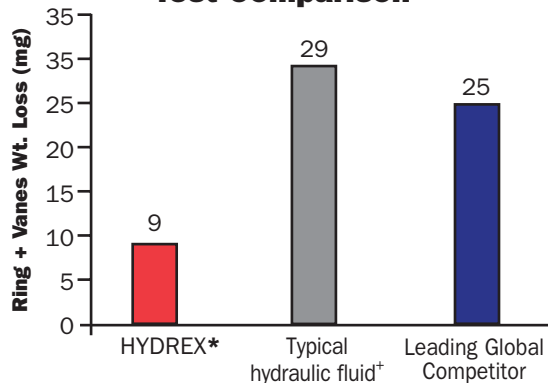
HYDREX XV  
2,012 Hrs

Leading Global  
Competitor  
2,012 Hrs

HYDREX demonstrates significantly lower sludge formation, reflecting outstanding oil quality<sup>†</sup>

- 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

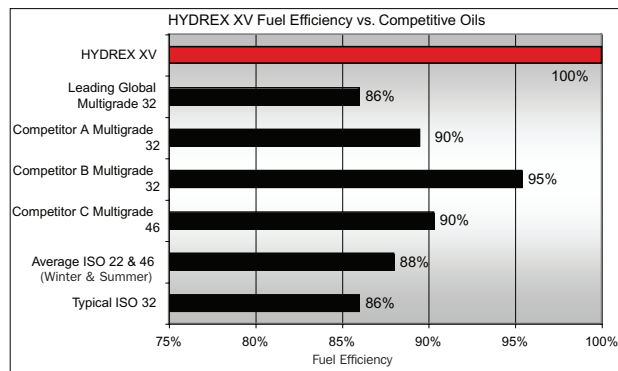
### Vickers 35VQ25 Hydraulic Pump Wear Test Comparison



<sup>+</sup>Average of 13 products tested

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

- High after shear VI to maintain optimal fluid viscosity at operating temperatures**
  - Increased pump efficiency in outdoor applications
  - Lower diesel fuel consumption for same amount of work, or increased equipment productivity
  - Less CO<sub>2</sub> emissions



HYDREX XV provides better fuel efficiency vs. leading competitive hydraulic oils, given the same amount of work.

The chart demonstrates the relative fuel efficiency between HYDREX XV and competitor products (HYDREX XV 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) and 90°C (194°F)

- 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 additives
- Improved foam and air entrainment performance**
  - Prevents overflowing of reservoirs
  - Eliminates “sponginess” from hydraulic systems and prevents pump cavitation

### Applications

Petro-Canada's HYDREX XV All Season hydraulic fluid is recommended for year-round use in piston, gear and vane hydraulic pumps found on industrial machinery and mobile equipment. HYDREX XV may be used in systems equipped with fine filters down to 3 microns without loss of additives or causing filter plugging.

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

HYDREX XV is suitable for use in the following:

- Denison HF-0
- Eaton Vickers M-2950-S and I-286-S
- Hagglunds AC-4.8
- USS 127 Specification
- DIN 51524 Part 3 HVLP
- ISO 6743/4 Type HV

<sup>†</sup> Based on industry standard test ASTM D4310 (extended to 2,012 hours).

## Typical Performance Data

PROPERTY	TEST METHOD	HYDREX XV
Start-up Temperature <sup>1</sup> , °C/°F	–	-40/-40
Operating Temperature Range <sup>2</sup> , °C/°F Mobile Equipment Industrial Machinery	–	-18 to 79 / 0 to 174 -18 to 75 / 0 to 167
Viscosity, cSt @ 40°C cSt @ 100°C SUS @ 100°F SUS @ 210°F cP @ -40°C (-40°F)	D445    D2983	43.2 10.5 215 61 9,250
Viscosity Index	D2270	245
Flash Point, °C/°F	D92	245/473
Pour Point, °C/°F	D97	-48/-54
Rust Procedures A & B, 24 hours	D665	Pass
Oxidation Stability, hours	D943	10,000+
Oxidation Stability, mg sludge	D4310	Pass
FZG, Damage Stage	D5182	12
Dielectric breakdown voltage, kV	D877	32
Four-Ball Wear Test, Scar Diam. (mm) 40 kg, 1200 rpm, 54°C, 1 hr	D4172	0.4

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

<sup>1</sup> Start-up is defined by the temperatures at which the oil viscosity is 10,000 cP.

<sup>2</sup> 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 1.3 cSt for industrial machinery, while 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.

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 auxiliary components in place.

## 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 XV hydraulic fluid, or any other product in our complete line of quality lubricants, please contact us at:

**Lubricants Head Office**  
Petro-Canada  
2310 Lakeshore Road West  
Mississauga, Ontario  
Canada L5J 1K2



Canada - West . . . . . Phone 1-800-661-1199  
- East (English) . . . . . Phone 1-800-268-5850  
    (French) . . . . . Phone 1-800-576-1686  
Other Areas . . . . . Phone (416) 730-2408  
E-mail . . . . . lubecsr@petro-canada.ca  
Internet . . . . . www.petro-canada.com

**Petro-Canada Europe Lubricants**  
**The Manor, Haseley Business Centre**  
**Warwick, Warwickshire**  
**CV35 7LS**

**United Kingdom**  
Phone . . . . . +44 (0) 2476-247294  
Fax . . . . . +44 (0) 2476-247295

**Petro-Canada America Lubricants**  
**980 North Michigan Avenue**  
**Suite 1400, #1431**  
**Chicago, Illinois**  
**USA 60611**

Phone . . . . . 1-888-284-4572  
Fax . . . . . (708) 246-8994  
E-mail . . . . . email@petro-canadaamerica.com