



DURATRAN™ SYNTHETIC

Introduction

Petro-Canada DURATRAN Synthetic is a full synthetic heavy duty transmission/hydraulic fluid designed for farm tractors, agricultural machinery, off-highway mining, forestry and construction equipment, with a common oil system for transmission, differential, final drives, hydraulics, wet brake and power steering mechanisms. **Petro-Canada's DURATRAN™ Synthetic THF was awarded the OEMmie Product Innovation Award in 2003. The award recognizes products that advance the state-of-the-art, provide unique solutions for the off highway industry and/or increase equipment performance.** DURATRAN Synthetic is formulated with unique patented 99.9% pure crystal clear HT processed base oils in combination with an advanced additive package eliminating the need for seasonal fluid changes to accommodate cold or hot temperature extremes. This formulation offers exceptional performance surpassing equipment manufacturer's specifications.

Features and Benefits

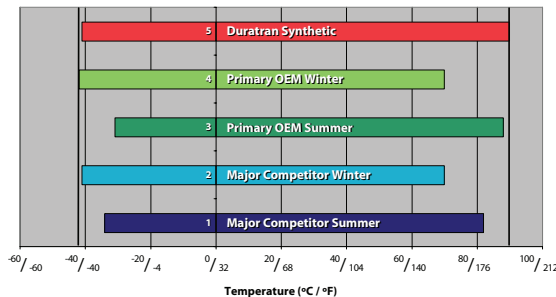
- **Superior Wear Protection**
 - Minimizes and reduces wear on transmission, differential, and final drive gears at elevated temperatures reducing the need for replacement parts
 - Superior gear and bearing wear protection even in the presence of water contamination
 - Less internal component wear reduces maintenance costs allowing increase in operating up time and reliability

- **Exceptional Performance at High and Low Temperatures**

- Surpasses John Deere OEM viscosity specifications JDM J20C (summer) and JDM J20D (winter)
- Reliable hot and cold weather operation providing a wide operating temperature range of -41°C/-41°F to 90°C/194°F. Operating temperature ranges are based on low temperature pumpability @ 20,000 cP and High Temperature Viscosity Film Thickness @ 9.1 cSt after KRL (20 hr) shearing

KRL Shear Viscosity 9.1 cSt @ 100°C / 212°F
and Brookfield Viscosity @ 20,000cP

Duratron Synthetic vs OEM and Competitor Summer/Winter Product
Offering Tractor Hydraulic Fluids System Oil Operating Temperature Range



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.

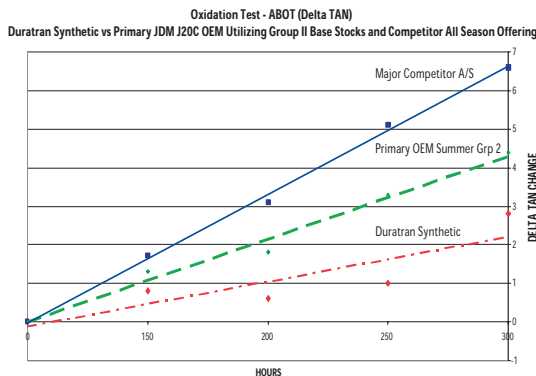


- **Superior Frictional Properties**

- Exceptional frictional performance offering less brake chatter, and effective braking to avoid slip-skip problems
- Allows superior clutch & transmission performance for smoother equipment operations

• **Long Life Protection**

- Superior resistance to high temperature fluid break down
- Superior oxidation stability resulting in resistance to viscosity increase and acid formation at elevated temperatures
- Superior resistance to build up of sludge and varnish on transmission & hydraulic components for extended drain intervals
- Surpasses the Allison C-4 oxidation test as well as the more demanding ABOT Mercon V oxidation test



*Note: Results are after 300 hr ABOT Oxidation Test which is more severe than JD requirement Allison C-4 (GM 6137M) Oxidation Test.

Applications

Petro-Canada DURATRAN Synthetic is recommended for use in farm tractors, agricultural machinery, off highway mining, forestry and construction equipment that has a common oil system for the transmission, final drive, hydraulic, power take off, wet brake and power steering mechanisms. In addition, DURATRAN Synthetic is suitable for use in transmissions specifying an Allison C-4, Caterpillar TO-2 and Caterpillar Axle oils L180D.

DURATRAN Synthetic formulation surpasses the field performance requirements of a wide range of equipment manufacturers including major North American tractor manufacturers.

DURATRAN Synthetic offers the trouble free operation that should be expected from a synthetic formulation in the widest range of climate & temperature extremes.

DURATRAN Synthetic lubricates and protects bearings and gears, transmits hydraulic power and provides the correct frictional and heat transfer medium for trouble free wet brake, clutch and transmission performance.

Petro-Canada recommends DURATRAN Synthetic for use where the following farm tractor, transmission, differential, and hydraulic fluid types are called for:

Farm Tractor Fluids

MANUFACTURER	CURRENT SPECIFICATION	MEETS OLDER SPECIFICATIONS
JOHN DEERE	JDM J20C (Summer) JDM J20D (Winter)	JDM J20A/B, JDM J14B JD 303 Fluid
MASSEY-FERGUSON	M-1141, M-1135	M-1129-A, M-1127-A/B, M-1110
CNH (CASE I.H., J.I. CASE NEW HOLLAND GROUP)	MS-1209, MS-1210/JIC145, MS-1230/ CNH MAT 3509, JIC 145	MS-1207, MS-1206, MS-1205, MS-204/JIC-185, B6, B-5, JIC-144, JIC-143, FNHA-2-C-201.00, FNHA-2-C-201.00A (134-D), FNAH-2-C-200.00 ESN-M2C134-A/B/C, ESN-M2C86-B ESN-M2C53-A, ESN-M2C48-B
KUBOTA UDT	UDT Hydraulic Fluid, KUBOTA SUPER UDT Universal Transdraulic Fluid	—
WHITE FARM (OLIVER)	Q-1826, Hydraulic Transmission Fluid (HTF)	Q-1802, Q-1766B, Q-1722, Q-1705
AGCO Deutz ALLIS, ALLIS	Power Fluid 821XL 272843	257541 246634
STEIGER	Hydraulic/Transmission Fluid, SEMS 17001	—
VERSATILE	—	Hydraulic/Gear Fluid Spec 24M Spec 23M
LANDINI	Tractor II Hydraulic Fluid	—
HESSTON FIAT	Oilofiat Tutela Multi-F	AF-87
VOLVO	WB 101	—
ZF TRANSMISSIONS	TE-ML 03 3E 3F 5F 6K	—

Transmissions, Differentials and Hydraulics

MANUFACTURER	CURRENT SPECIFICATION	MEETS OLDER SPECIFICATIONS
SUNDSTRAND	Hydrostatic Transmission Fluid	—
ALLISON	Type C-4 Fluid (See TB1167E/F for additional information)	C-3 Fluid
CATERPILLAR	—	TO-2
DRESSER CONSTRUCTION EQUIPMENT DIVISION	Transmission/Hydraulic Fluid	
PARKER/ABEX/DENISON	Hydraulic Fluid-HF-0/1/2	
EATON/VICKERS	M-2950-S, 1-286-S	—
PLESSEY-SUNDSTRAND	Hydraulic Fluid	—
CLARK	Lift Truck Transmission Fluid TA12, TA18	HR 500, HR 600

Typical Performance Data

PROPERTY	TEST METHOD	DURATRAN SYNTHETIC
Flash Point, C O C, °C / °F	ASTM D92	225 / 437
Kinematic Viscosity cSt @ 40°C / SUS @ 100°F cSt @ 100°C / SUS @ 210°F	ASTM D445	46.80 / 235 10.0 / 59.6
High Temp / High Shear Viscosity cP @ 150°C / 302°F	ASTM D4682	3.17
Viscosity Index	ASTM D2270	208
Brookfield Viscosity, cP @ -20°C / -4°F	ASTM D2983	1260
Brookfield Viscosity, cP @ -40°C / -40°F	ASTM D2983	15,740
Scanning Brookfield Viscosity, cP @ -40°C / -40°F	ASTM D5133	27,000
Pour Point, °C / °F	ASTM D5950	-47/-53
Vickers Pump Wear	ASTM D2882	Pass
Total Base Number (TBN)	ASTM D2896	10.0
Copper Corrosion, 3 h, 149°C / 300°F	ASTM D130M	1B
KRL Shear Testing, 20hr Viscosity cSt @ 100°C / 212°F After KRL Testing	CEC-L-45-T-93 ASTM D455	7.34
ABOT Oxidation Testing, (155°C / 311°F) 300 hrs. Tan Increase	Ford Mercon V ASTM D664	2.80
John Deere Tests		
Shear Stability Test; sheared oil cSt 100°C / 212°F	JDQ 102	7.60
Rust Test - Humidity Cabinet; (49°C / 120°F), 100% R.H.	JDMJ20C	Pass
Oxidation Stability Test	JDQ 23	Pass
Oil Compatibility Test	JDQ23	Pass
Compatibility Sensitivity Test	JDQ19	Pass
Foam Test	JDQ33	Pass

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

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 DURATRAN Synthetic transmission/ hydraulic fluid, or any other product in our complete line of quality lubricants, please contact us at:

Lubricants Head Office
Petro-Canada Lubricants Inc.
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@suncor.com
Website lubricants.petro-canada.ca

Petro-Canada Europe Lubricants Limited

Wellington House, Starley Way
Birmingham International Park
Solihull, B37 7HB, United Kingdom

Telephone +44 (0) 121 781 7264
Fax +44 (0) 121 781 7401
UK Website www.petro-canada.co.uk
German Website www.petro-canada.de

Petro-Canada America Lubricants

980 North Michigan Avenue
Suite 1400, #1431
Chicago, Illinois
USA 60611

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

Petro-Canada Asia Pacific Holding Company Ltd.

Jia Shi Lubricants Trading (Shanghai) Co. Ltd.
1908 World Trade Tower
500 Guangdong Road, Huangpu District
Shanghai, China 200001

Phone +86-21-6362-0066
Fax +86-21-6362-0536
E-mail asiapacific@suncor.com
Website www.petrocanada.cn

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