

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 913072 Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (36 QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a components first oil change.

Contamination

There is no indication of any contamination in the oil.

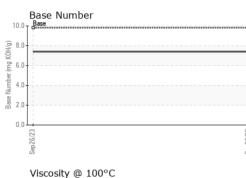
Fluid Condition

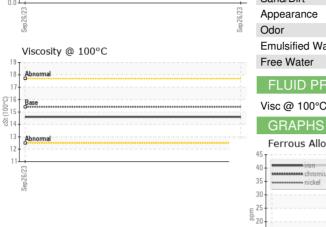
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

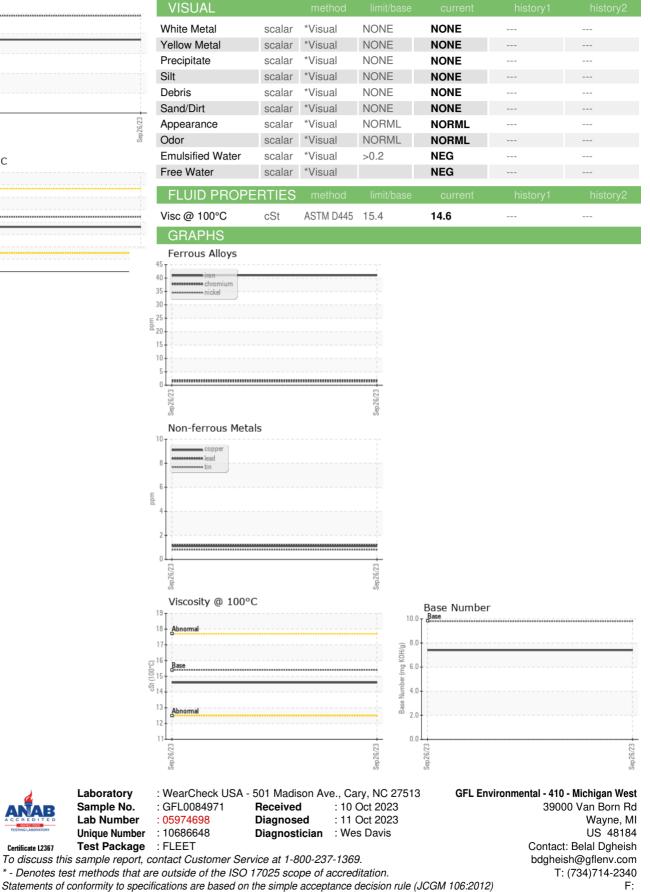
Fuel WC Method >3.0 <1.0	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 2630 Oil Age hrs Client Info NORMAL Sample Status I NORMAL CONTAMINATION method imit/base current history1 history1 Glycol WC Method >3.0<	Sample Number		Client Info		GFL0084971		
Oil Age hrs Client Info 2630 Oil Changed Client Info N/A Sample Status Imit/base current history1 history1 CONTAMINATION method imit/base current history1 history1 Fuel WC Method >3.0 <1.0	Sample Date		Client Info		26 Sep 2023		
Oil Changed Client Info N/A Sample Status Image Imag	Machine Age	hrs	Client Info		2630		
Sample Status NORMAL CONTAMINATION method limit/base current history1 history1 Fuel WC Method >3.0 <1.0	Oil Age	hrs	Client Info		2630		
CONTAMINATION method limit/base current history1 histor Fuel WC Method >3.0 <1.0	Oil Changed		Client Info		N/A		
Fuel WC Method >3.0 <1.0 Glycol WC Method NEG WEAR METALS method limit/base current history1 history1 WEAR METALS method limit/base current history1 Chromium ppm ASTM D5185m >20 2 Nickel ppm ASTM D5185m >20 6 Aluminum ppm ASTM D5185m >20 6 Aduminum ppm ASTM D5185m >20 6 Aduminum ppm ASTM D5185m >20 6 Copper ppm ASTM D5185m >20 6 Cadmium ppm ASTM D5185m 0 3 ADDITVES method limit/base cu	Sample Status				NORMAL		
Glycol WC Method NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >120 41 Othromium ppm ASTM D5185m >20 2 Nickel ppm ASTM D5185m >2 <1 Silver ppm ASTM D5185m >2 0 Aluminum ppm ASTM D5185m >20 6 Aluminum ppm ASTM D5185m >20 6 Aluminum ppm ASTM D5185m >20 1 Adadium ppm ASTM D5185m >20 1 Vanadium ppm ASTM D5185m 0 3 Addmium ppm ASTM D5185m 0 3	CONTAMINAT	ION	method	limit/base	current	history1	history2
Glycol WC Method NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >120 41 Ohromium ppm ASTM D5185m >20 2 Nickel ppm ASTM D5185m >2 <1	Fuel		WC Method	>3.0	<1.0		
Iron ppm ASTM D5185m >120 41 Chromium ppm ASTM D5185m >20 2 Nickel ppm ASTM D5185m >2 <1							
Iron ppm ASTM D5185m >120 41 Chromium ppm ASTM D5185m >20 2 Nickel ppm ASTM D5185m >2 <1 Silver ppm ASTM D5185m >2 <1 Aluminum ppm ASTM D5185m >20 6 Copper ppm ASTM D5185m >300 1 Copper ppm ASTM D5185m >300 1 Cadmium ppm ASTM D5185m >15 <1 ADDITIVES method limit/base current history1 histor Boron ppm ASTM D5185m 0 0 Magnese ppm ASTM D5185m 0 <1 Magnesium ppm ASTM D5185m <t< th=""><th>WEAR METAL</th><th>S</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	WEAR METAL	S	method	limit/base	current	history1	history2
Chromium ppm ASTM D5185m >20 2 Nickel ppm ASTM D5185m >5 1 Silver ppm ASTM D5185m >2 <1			ASTM D5185m		41		
Nickel ppm ASTM D5185m >5 1 Titanium ppm ASTM D5185m >2 <1	-						
Titanium ppm ASTM D5185m >2 <1 Silver ppm ASTM D5185m >2 0 Aluminum ppm ASTM D5185m >20 6 Lead ppm ASTM D5185m >330 1 Copper ppm ASTM D5185m >330 1 Yanadium ppm ASTM D5185m >15 <1							
Silver ppm ASTM D5185m >2 0 Aluminum ppm ASTM D5185m >20 6 Lead ppm ASTM D5185m >40 1 Copper ppm ASTM D5185m >330 1 Tin ppm ASTM D5185m >15 <1					-		
Aluminum ppm ASTM D5185m >20 6 Lead ppm ASTM D5185m >40 1 Copper ppm ASTM D5185m >330 1 Tin ppm ASTM D5185m >15 <1							
Lead ppm ASTM D5185m >40 1 Copper ppm ASTM D5185m >330 1 Tin ppm ASTM D5185m >15 <1					-		
Copper ppm ASTM D5185m >330 1 Tin ppm ASTM D5185m >15 <1					-		
Tin ppm ASTM D5185m >15 <1 Vanadium ppm ASTM D5185m >15 <1							
Vanadium ppm ASTM D5185m <1 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 3 Barium ppm ASTM D5185m 0 0 Malgaese ppm ASTM D5185m 0 60 62 Magnesium ppm ASTM D5185m 0 <1					-		
Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history Boron ppm ASTM D5185m 0 3 Barium ppm ASTM D5185m 0 0 Malybdenum ppm ASTM D5185m 0 62 Manganese ppm ASTM D5185m 0 <-1				>10			
ADDITIVES method limit/base current history1 history Boron ppm ASTM D5185m 0 3 Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 60 62 Manganese ppm ASTM D5185m 0 <1							
Boron ppm ASTM D5185m 0 3 Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 60 62 Manganese ppm ASTM D5185m 0 <1	Cadmium	ppm	ASTM D5185m		U		
Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 60 62 Manganese ppm ASTM D5185m 0 <1 Magnesium ppm ASTM D5185m 1010 939 Calcium ppm ASTM D5185m 1070 1083 Calcium ppm ASTM D5185m 1070 1083 Zinc ppm ASTM D5185m 1270 1287 Sulfur ppm ASTM D5185m 2060 2990 Solicon ppm ASTM D5185m 225 12 Sodium ppm ASTM D5185m >20 16 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 62 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	3		
Manganese ppm ASTM D5185m 0 <1 Magnesium ppm ASTM D5185m 1010 939 Calcium ppm ASTM D5185m 1010 939 Calcium ppm ASTM D5185m 1070 1083 Phosphorus ppm ASTM D5185m 1270 1287 Zinc ppm ASTM D5185m 2060 2990 Sulfur ppm ASTM D5185m 2060 2990 Solicon ppm ASTM D5185m 2060 2990 Sodium ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m >20 16 INFRA-RED method limit/base current history1 history1 Soot % % <	Barium	ppm	ASTM D5185m	0	0		
Magnesium ppm ASTM D5185m 1010 939 Calcium ppm ASTM D5185m 1070 1083 Phosphorus ppm ASTM D5185m 1070 1083 Zinc ppm ASTM D5185m 1150 1046 Sulfur ppm ASTM D5185m 1270 1287 Sulfur ppm ASTM D5185m 2060 2990 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m >20 16 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 1.7 Nitration Abs/cm	Molybdenum	ppm			62		
Calcium ppm ASTM D5185m 1070 1083 Phosphorus ppm ASTM D5185m 1150 1046 Zinc ppm ASTM D5185m 1270 1287 Sulfur ppm ASTM D5185m 2060 2990 CONTAMINANTS method limit/base current history1 histor Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m >25 12 Potassium ppm ASTM D5185m >20 16 INFRA-RED method limit/base current history1 histor Soot % % *ASTM D7844 >4 1.7 Nitration Abs/cm *ASTM D7624 >20 12.9 Sulfation Abs/.1mm< *ASTM D741	Manganese	ppm	ASTM D5185m	0	<1		
Phosphorus ppm ASTM D5185m 1150 1046 Zinc ppm ASTM D5185m 1270 1287 Sulfur ppm ASTM D5185m 2060 2990 CONTAMINANTS method limit/base current history1 histor Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m >20 16 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 1.7 Nitration Abs/cm *ASTM D7624 >20 12.9 Sulfation Abs/.1mm *ASTM D7415 >30 24.3	Magnesium	ppm	ASTM D5185m	1010	939		
Zinc ppm ASTM D5185m 1270 1287 Sulfur ppm ASTM D5185m 2060 2990 CONTAMINANTS method limit/base current history1 histor Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m >20 16 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 1.7 Nitration Abs/cm *ASTM D7624 >20 12.9 Sulfation Abs/.1mm *ASTM D7415 >30 24.3	Calcium	ppm	ASTM D5185m	1070	1000		
Sulfur ppm ASTM D5185m 2060 2990 CONTAMINANTS method limit/base current history1 histor Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m >20 16 INFRA-RED method limit/base current history1 histor Soot % % *ASTM D7844 >4 1.7 Nitration Abs/cm *ASTM D7624 >20 12.9 Sulfation Abs/.1mm *ASTM D7415 >30 24.3	Phosphorus			1070	1083		
CONTAMINANTS method limit/base current history1 histor Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m >25 12 Potassium ppm ASTM D5185m >20 16 INFRA-RED method limit/base current history1 histor Soot % % *ASTM D7844 >4 1.7 Nitration Abs/cm *ASTM D7624 >20 12.9 Sulfation Abs/.1mm *ASTM D7415 >30 24.3		ppm	ASTM D5185m				
Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m >25 31 Potassium ppm ASTM D5185m >20 16 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 1.7 Nitration Abs/cm *ASTM D7624 >20 12.9 Sulfation Abs/.1mm *ASTM D7415 >30 24.3	Zinc			1150	1046 1287		
Sodium ppm ASTM D5185m 31 Potassium ppm ASTM D5185m >20 16 INFRA-RED method limit/base current history1 histor Soot % % *ASTM D7844 >4 1.7 Nitration Abs/cm *ASTM D7624 >20 12.9 Sulfation Abs/.1mm *ASTM D7415 >30 24.3	Sulfur	ppm ppm	ASTM D5185m	1150 1270	1046 1287		
Potassium ppm ASTM D5185m >20 16 INFRA-RED method limit/base current history1 histor Soot % % *ASTM D7844 >4 1.7 Nitration Abs/cm *ASTM D7624 >20 12.9 Sulfation Abs/.1mm *ASTM D7415 >30 24.3	Sulfur	ppm ppm	ASTM D5185m ASTM D5185m	1150 1270 2060	1046 1287 2990		
INFRA-RED method limit/base current history1 histor Soot % % *ASTM D7844 >4 1.7 Nitration Abs/cm *ASTM D7624 >20 12.9 Sulfation Abs/.1mm *ASTM D7415 >30 24.3	Sulfur CONTAMINAN	ppm ppm TS	ASTM D5185m ASTM D5185m method	1150 1270 2060 limit/base	1046 1287 2990 current	 history1	 history2
Soot % % *ASTM D7844 >4 1.7 Nitration Abs/cm *ASTM D7624 >20 12.9 Sulfation Abs/.1mm *ASTM D7415 >30 24.3	Sulfur CONTAMINAN Silicon	ppm ppm TS ppm	ASTM D5185m ASTM D5185m method ASTM D5185m	1150 1270 2060 limit/base	1046 1287 2990 current 12	 history1	 history2
Nitration Abs/cm *ASTM D7624 >20 12.9 Sulfation Abs/.1mm *ASTM D7415 >30 24.3	Sulfur CONTAMINAN Silicon Sodium	ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m	1150 1270 2060 limit/base >25	1046 1287 2990 current 12 31	 history1	 history2
Nitration Abs/cm *ASTM D7624 >20 12.9 Sulfation Abs/.1mm *ASTM D7415 >30 24.3	Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	1150 1270 2060 <i>limit/base</i> >25 >20	1046 1287 2990 current 12 31 16	 history1 	 history2
Sulfation Abs/.1mm *ASTM D7415 >30 24.3	Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m method	1150 1270 2060 imit/base >25 >20 imit/base	1046 1287 2990 current 12 31 16 current	 history1 history1	 history2 history2
FLUID DEGRADATION method limit/base current history1 histor	Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844	1150 1270 2060 imit/base >25 >20 imit/base >4	1046 1287 2990 current 12 31 16 current 1.7	 history1 history1 	 history2 history2
	Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm TS ppm ppm ppm % Abs/cm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624	1150 1270 2060 imit/base >25 >20 imit/base >4 >20	1046 1287 2990 current 12 31 16 current 1.7 1.7 12.9	 history1 history1 	 history2 history2
Oxidation Abs/.1mm *ASTM D7414 >25 21.2	Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7844	1150 1270 2060 imit/base >25 >20 imit/base >4 >20 >30	1046 1287 2990 current 12 31 16 current 1.7 12.9 24.3	 history1 history1 	 history2 history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 7.4	Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm TS ppm ppm ppm ppm % Abs/cm Abs/cm Abs/1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7415	1150 1270 2060 limit/base >25 >20 limit/base >20 >20 >30	1046 1287 2990 current 12 31 16 current 1.7 12.9 24.3 current	 history1 history1 history1 	 history2 history2 history2 history2



OIL ANALYSIS REPORT







Certificate L2367