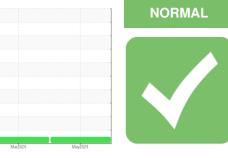


OIL ANALYSIS REPORT

Sample Rating Trend





928114 Component Diesel Engine Fluid

PETRO CANADA DURON SHP 15W40 (--- GAL)

SAMPLE INFORMATION method

DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Machine Id

Wear

All component wear rates are normal.

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.

Sample Number Client Info GFL0120613 GFL0108483 GFL0066078 Sample Date Client Info 0 0 0 Machine Age hrs Client Info 0 0 0 Oll Age hrs Client Info 0 0 0 Oll Changed Client Info N/A N/A N/A Sample Status Immobility NorMAL NORMAL NORMAL CONTAMINATION method init/base current history1 history2 Fuel WC Method >0.2 NEG NEG NEG Grycol WC Method >0.2 NEG NEG NEG Grycol WC Method >0.2 1 0 0 Cremain ppm ASTM05155 >5 <1 0 0 Cremain ppm ASTM05155 >2 <1 0 0 Nickel ppm ASTM05155 >2 <1 0 0 1 <th></th> <th></th> <th>method</th> <th>iimii/base</th> <th>current</th> <th>riistory i</th> <th>nistory2</th>			method	iimii/base	current	riistory i	nistory2
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Phosphorus ppm ASTM D5185m 1150 957 987 983 Zinc ppm ASTM D5185m 1270 1162 1207 1180 Sulfur ppm ASTM D5185m 2060 3014 3582 3423 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 3 3 Sodium ppm ASTM D5185m >25 5 3 3 Sodium ppm ASTM D5185m >20 2 0 2 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 6.4 5.1 5.6 Sulfation Abs/.1mm *ASTM D7415 3	Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0	0 55 0	0 53 0	0 60 0
Zinc ppm ASTM D5185m 1270 1162 1207 1180 Sulfur ppm ASTM D5185m 2060 3014 3582 3423 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 3 3 Sodium ppm ASTM D5185m >25 5 3 3 Sodium ppm ASTM D5185m >20 2 0 2 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 6.4 5.1 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 17.2 17.7 FLUID DEGRADATION method limit/base	Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010	0 55 0 888	0 53 0 958	0 60 0 881
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Soot % % *ASTM D7844 >4 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 6.4 5.1 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 17.2 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 12.8 13.5	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	0 55 0 888 1026 957 1162 3014 current 5	0 53 0 958 1100 987 1207 3582 history1 3	0 60 0 881 1059 983 1180 3423 history2 3
Nitration Abs/cm *ASTM D7624 >20 6.4 5.1 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 17.2 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 12.8 13.5	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 Limit/base >25	0 55 0 888 1026 957 1162 3014 current 5 2	0 53 0 958 1100 987 1207 3582 history1 3 0	0 60 0 881 1059 983 1180 3423 history2 3 2
Nitration Abs/cm *ASTM D7624 >20 6.4 5.1 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 17.2 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 12.8 13.5	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	0 55 0 888 1026 957 1162 3014 <u>current</u> 5 2 2 2	0 53 0 958 1100 987 1207 3582 history1 3 0 0	0 60 0 881 1059 983 1180 3423 history2 3 2 1
Sulfation Abs/.1mm *ASTM D7415 >30 18.1 17.2 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 12.8 13.5	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20	0 55 0 888 1026 957 1162 3014 current 5 2 2 2 2	0 53 0 958 1100 987 1207 3582 history1 3 0 0 0	0 60 0 881 1059 983 1180 3423 history2 3 2 1 history2
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 12.8 13.5	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i>	0 55 0 888 1026 957 1162 3014 current 5 2 2 2 2 current 0.1	0 53 0 958 1100 987 1207 3582 history1 3 0 0 0 0 history1 0.1	0 60 0 881 1059 983 1180 3423 history2 3 2 1 1 history2 0.1
Oxidation Abs/.1mm *ASTM D7414 >25 14.3 12.8 13.5	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	0 55 0 888 1026 957 1162 3014 <u>current</u> 5 2 2 2 2 <u>current</u> 0.1 6.4	0 53 0 958 1100 987 1207 3582 history1 3 0 0 0 history1 0.1 5.1	0 60 0 881 1059 983 1180 3423 history2 3 2 1 1 history2 0.1 5.6
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm t ppm ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20 >4 >20	0 55 0 888 1026 957 1162 3014 <u>current</u> 5 2 2 2 2 <u>current</u> 0.1 6.4 18.1	0 53 0 958 1100 987 1207 3582 history1 3 0 0 0 history1 0.1 5.1 17.2	0 60 0 881 1059 983 1180 3423 history2 3 2 1 1 history2 0.1 5.6 17.7
Base Number (BN) mg K0H/g ASTM D2896 9.8 8.4 8.7 8.9	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 60 1010 1070 1150 1270 2060 Imit/base >25 -20 Imit/base >20 >30 Imit/base	0 55 0 888 1026 957 1162 3014 <i>current</i> 5 2 2 2 <i>current</i> 0.1 6.4 18.1 <i>current</i>	0 53 0 958 1100 987 1207 3582 history1 3 0 0 0 history1 0.1 5.1 17.2 history1	0 60 0 881 1059 983 1180 3423 history2 3 2 1 1 history2 0.1 5.6 17.7 history2
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm % Abs/cm Abs/1mm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	0 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 20 <i>limit/base</i> >20 <i>s</i> 30 <i>limit/base</i>	0 55 0 888 1026 957 1162 3014 <i>current</i> 5 2 2 2 <i>current</i> 0.1 6.4 18.1 <i>current</i> 14.3	0 53 0 958 1100 987 1207 3582 history1 3 0 0 0 history1 0.1 5.1 17.2 history1 12.8	0 60 0 881 1059 983 1180 3423 history2 3 2 1 1 history2 0.1 5.6 17.7 history2 13.5



3

30

25

Abs/cm

10

10.0

6.

2Cup1

19

13

12

Sep25/23 -

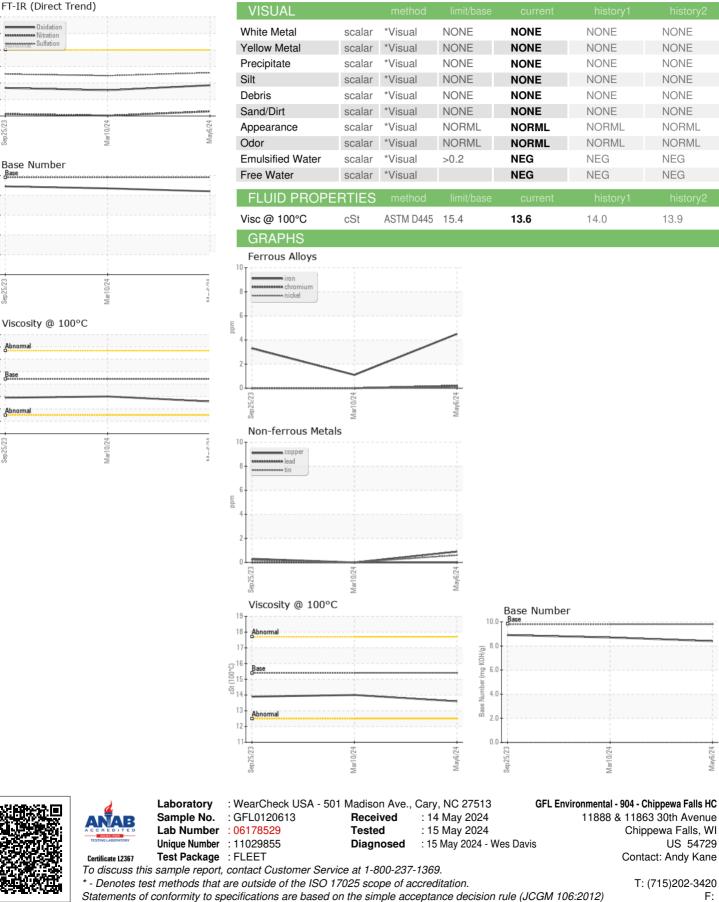
(mg KOH/g)

mbe 4.

Base

Sep25/23

OIL ANALYSIS REPORT



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F: Submitted By: BRAYDON SMITH

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