

OIL ANALYSIS REPORT

Sample Rating Trend

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NORMAL

Machine Id 10775C

Component Natural Gas Engine

Fluid

PETRO CANADA DURON GEO LD 15W40 (30 QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

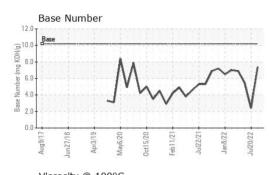
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

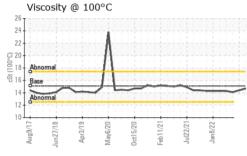
Sample Date Client Info 04 Aug 2023 20 Jul 2022 31 Mar 2022 Machine Age hrs Client Info 13635 13296 12462 Oil Age hrs Client Info 600 600 589 Oil Changed Client Info N/A Changed Changed Changed Sample Status nethod limit/base current history1 history2 Iron ppm ASTM D5185m >50 17 62 17 Chromium ppm ASTM D5185m >2 0 0 Silver ppm ASTM D5185m >2 0 0 Silver ppm ASTM D5185m >3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 13 2 2 2 1 1 1 1 1 1 1 <th>SAMPLE INFORI</th> <th>MATION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 13635 13296 12462 Oil Age hrs Client Info 600 600 559 Oil Changed Client Info N/A Changed Changed Sample Status method limit/base current history1 history2 Iron ppm ASTM D5185m >4 1 6 2 Nickel ppm ASTM D5185m >4 1 6 2 Silver ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >30 <1 13 2 Copper ppm ASTM D5185m >35 1 2 2 Tin ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 0 Cadmium <th>Sample Number</th> <th></th> <th>Client Info</th> <th></th> <th>GFL0081023</th> <th>GFL0053631</th> <th>GFL0037751</th>	Sample Number		Client Info		GFL0081023	GFL0053631	GFL0037751
Oil Age hrs. Client Info 600 600 589 Oil Changed Client Info N/A Changed Changed Sample Status Imit/base current history1 history2 Iron ppm ASTM D5185m >50 17 € 62 17 Chromium ppm ASTM D5185m >4 1 ▲ 62 2 Nickel ppm ASTM D5185m >4 1 ▲ 62 2 Titanium ppm ASTM D5185m >4 1 0 0 Silver ppm ASTM D5185m >3 0 0 0 Lead ppm ASTM D5185m >3 1 2 2 Tin ppm ASTM D5185m >35 1 2 2 Cadmium ppm ASTM D5185m 0 0 0 1 Cadmium ppm ASTM D5185m 5 8 0 0 Managanese	Sample Date		Client Info		04 Aug 2023	20 Jul 2022	31 Mar 2022
Oil Changed Sample Status Client Info N/A Changed ABNORMAL Changed NORMAL Changed ABNORMAL WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 17 ▲ 62 17 Chromium ppm ASTM D5185m >2 <1 <1 0 Nickel ppm ASTM D5185m >2 <1 <1 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 1 2 2 Copper ppm ASTM D5185m >3 1 2 2 Tin ppm ASTM D5185m >3 0 0 0 Additum ppm ASTM D5185m 0 0 0 0 Additum ppm ASTM D5185m 50 17 6 23 Barinom ppm ASTM D5185m 50 17 6 23 Barinom ppm ASTM D5185m 50 17 6 23 Barino	Machine Age	hrs	Client Info		13635	13296	12462
Sample Status NORMAL ABNORMAL NORMAL NORMAL WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 17 62 17 Chromium ppm ASTM D5185m >2 <1 0 0 Nickel ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >3 0 0 0 Auminum ppm ASTM D5185m >9 4 4 3 Lead ppm ASTM D5185m >30 <1 1 <1 <1 Antimony ppm ASTM D5185m >4 <1 1 <1 <1 Antimony ppm ASTM D5185m 0 0 0 <1 <1 Addmium pm ASTM D5185m 5 8 0 0 <1 Copper ppm ASTM D5185m 5	Oil Age	hrs	Client Info		600	600	589
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Iron ppm ASTM D5185m >50 17 ▲ 62 17 Chromium ppm ASTM D5185m >4 1 ▲ 6 2 Nickel ppm ASTM D5185m >2 <1 <1 0 Titanium ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 0 4 3 Lead ppm ASTM D5185m >3 1 2 2 Copper ppm ASTM D5185m >35 1 2 2 Tin ppm ASTM D5185m >35 1 2 2 Copper ppm ASTM D5185m 0 0 <1 1 Antimony ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 50 17 6 23 Barium ppm ASTM D5185m 50 50 81 0 </th <th>Sample Status</th> <th></th> <th></th> <th></th> <th>NORMAL</th> <th>ABNORMAL</th> <th>NORMAL</th>	Sample Status				NORMAL	ABNORMAL	NORMAL
Norman ppm ASTM D5185m >4 1 6 2 Nickel ppm ASTM D5185m >2 <1 <1 0 Titanium ppm ASTM D5185m >2 <1 <1 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 0 <1 13 2 Copper ppm ASTM D5185m >35 1 2 2 1 Antimony ppm ASTM D5185m >4 <1 1 <1 Antimony ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 50 17 6 23 Barium ppm ASTM D5185m 50 117 6 23 Barium ppm ASTM D5185m 50 <	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >2 <1	Iron	ppm	ASTM D5185m	>50	17	6 2	17
Titanium ppm ASTM D5185m <1	Chromium	ppm	ASTM D5185m	>4	1	<u> </u>	2
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >9 4 4 3 Lead ppm ASTM D5185m >9 4 4 3 Copper ppm ASTM D5185m >30 <1	Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Aluminum ppm ASTM D5185m >9 4 4 3 Lead ppm ASTM D5185m >30 <1 13 2 2 Copper ppm ASTM D5185m >35 1 2 2 Tin ppm ASTM D5185m >4 <1 1 <1 Antimony ppm ASTM D5185m >4 <1 1 <1 Vanadium ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 50 81 116 Magnesium ppm ASTM D5185m 50 50 81 116 Magnesium ppm ASTM D5185m 50 733 595 650 Calcium ppm ASTM D5185m 780 712 </th <th>Titanium</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th><1</th> <th>0</th> <th>0</th>	Titanium	ppm	ASTM D5185m		<1	0	0
Lead ppm ASTM D5185m >30 <1	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >35 1 2 2 Tin ppm ASTM D5185m >4 <1 1 <1 Antimony ppm ASTM D5185m Vanadium ppm ASTM D5185m 0 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 17 6 23 Barium ppm ASTM D5185m 50 50 81 116 Magnesium ppm ASTM D5185m 50 733 595 650 Calcium ppm ASTM D5185m 780 712 682 683 Zinc ppm ASTM D5185m 780 712 682 683 Sulfur ppm ASTM D5185m 780 908	Aluminum	ppm	ASTM D5185m	>9	4	4	3
Tin ppm ASTM D5185m >4 <1	Lead	ppm	ASTM D5185m	>30	<1	13	2
Antimony ppm ASTM D5185m Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 17 6 23 Barium ppm ASTM D5185m 5 8 0 0 Molybdenum ppm ASTM D5185m 50 50 81 116 Magnesium ppm ASTM D5185m 50 733 595 650 Calcium ppm ASTM D5185m 780 712 682 683 Zinc ppm ASTM D5185m 780 712 662 2194 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >4100 15 14 17	Copper	ppm	ASTM D5185m	>35	1	2	2
Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 17 6 23 Barium ppm ASTM D5185m 5 8 0 0 Molybdenum ppm ASTM D5185m 5 8 0 0 Magnesium ppm ASTM D5185m 50 50 81 116 Magnesium ppm ASTM D5185m 660 733 595 650 Calcium ppm ASTM D5185m 1510 1335 1557 1465 Phosphorus ppm ASTM D5185m 780 712 682 683 Sulfur ppm ASTM D5185m 2040 2370 2656 2194 CONTAMINANTS method imit/base current history1	Tin	ppm	ASTM D5185m	>4	<1	1	<1
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ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 17 6 23 Barium ppm ASTM D5185m 5 8 0 0 Molybdenum ppm ASTM D5185m 50 50 81 116 Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 560 733 595 650 Calcium ppm ASTM D5185m 780 712 682 683 Zinc ppm ASTM D5185m 780 712 682 683 Sulfur ppm ASTM D5185m 780 712 682 683 Sulfur ppm ASTM D5185m 2040 2370 2656 2194 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20	Vanadium	ppm	ASTM D5185m		0	0	
Boron ppm ASTM D5185m 50 17 6 23 Barium ppm ASTM D5185m 5 8 0 0 Molybdenum ppm ASTM D5185m 50 50 81 116 Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 560 733 595 650 Calcium ppm ASTM D5185m 560 733 595 650 Calcium ppm ASTM D5185m 780 712 682 683 Zinc ppm ASTM D5185m 70 908 921 836 Sulfur ppm ASTM D5185m 2040 2370 2656 2194 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 5 0 3 INFRA-RED method limit/base current <th>Cadmium</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>0</th> <th>0</th> <th>0</th>	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 5 8 0 0 Molybdenum ppm ASTM D5185m 50 50 81 116 Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 560 733 595 650 Calcium ppm ASTM D5185m 560 733 595 650 Calcium ppm ASTM D5185m 1510 1335 1557 1465 Phosphorus ppm ASTM D5185m 780 712 682 683 Zinc ppm ASTM D5185m 780 712 682 683 Sulfur ppm ASTM D5185m 2040 2370 2656 2194 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >10 15 14 17 Sodium ppm ASTM D5185m <t< th=""><th>ADDITIVES</th><th></th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 50 50 81 116 Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 560 733 595 650 Calcium ppm ASTM D5185m 560 733 595 650 Calcium ppm ASTM D5185m 780 712 682 683 Zinc ppm ASTM D5185m 870 908 921 836 Sulfur ppm ASTM D5185m 2040 2370 2656 2194 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >10 15 14 17 Sodium ppm ASTM D5185m >20 5 0 3 INFRA-RED method limit/base cu	Boron	ppm	ASTM D5185m	50	17	6	23
Manganese ppm ASTM D5185m 0 2 <1	Barium	ppm	ASTM D5185m	5	8	0	0
Magnesium ppm ASTM D5185m 560 733 595 650 Calcium ppm ASTM D5185m 1510 1335 1557 1465 Phosphorus ppm ASTM D5185m 780 712 682 683 Zinc ppm ASTM D5185m 870 908 921 836 Sulfur ppm ASTM D5185m 2040 2370 2656 2194 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 15 14 17 Sodium ppm ASTM D5185m >20 5 0 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 0 Nitration Abs/m *ASTM D7624 >20 9.9 13.0 8.1 Sulfation Abs/.tmm *ASTM D7415 >30	Molybdenum	ppm			50		116
Calcium ppm ASTM D5185m 1510 1335 1557 1465 Phosphorus ppm ASTM D5185m 780 712 682 683 Zinc ppm ASTM D5185m 870 908 921 836 Sulfur ppm ASTM D5185m 2040 2370 2656 2194 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 15 14 17 Sodium ppm ASTM D5185m >+100 15 14 17 Sodium ppm ASTM D5185m >20 5 0 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 0 0 Nitration Abs/mm<*ASTM D7624 >20 9.9 13.0 8.1 3 Sulfation Abs/.imm<*ASTM D7415 >30	Manganese	ppm	ASTM D5185m	0	_		<1
Phosphorus ppm ASTM D5185m 780 712 682 683 Zinc ppm ASTM D5185m 870 908 921 836 Sulfur ppm ASTM D5185m 2040 2370 2656 2194 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 15 14 17 Sodium ppm ASTM D5185m >+100 15 14 17 Sodium ppm ASTM D5185m >20 5 0 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 >20 9.9 13.0 8.1 Sulfation Abs/.tmm *ASTM D7415 >30 20.4 27.8 22.3 FLUID DEGRADATION method limit/base cu	Magnesium	ppm	ASTM D5185m				650
Zinc ppm ASTM D5185m 870 908 921 836 Sulfur ppm ASTM D5185m 2040 2370 2656 2194 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 15 14 17 Sodium ppm ASTM D5185m >+100 15 14 17 Sodium ppm ASTM D5185m >+20 5 0 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 5 0 0 Nitration Abs/cm *ASTM D7624 >20 9.9 13.0 8.1 Sulfation Abs/.tmm *ASTM D7415 >30 20.4 27.8 22.3 FLUID DEGRADATION method limit/base current history1 history2	Calcium	ppm	ASTM D5185m	1510	1335	1557	
SulfurppmASTM D5185m2040237026562194CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>+100151417SodiumppmASTM D5185m>+100151417SodiumppmASTM D5185m>20503INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844000NitrationAbs/cm*ASTM D7624>209.913.08.1SulfationAbs/.tmm*ASTM D7415>3020.427.822.3FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	Phosphorus	ppm					
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>+100151417SodiumppmASTM D5185m6116PotassiumppmASTM D5185m>20503INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844000NitrationAbs/cm*ASTM D7624>209.913.08.1SulfationAbs/.tmm*ASTM D7415>3020.427.822.3FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	Zinc	ppm					
Silicon ppm ASTM D5185m >+100 15 14 17 Sodium ppm ASTM D5185m 6 11 6 Potassium ppm ASTM D5185m >20 5 0 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 0 0 Nitration Abs/cm *ASTM D7624 >20 9.9 13.0 8.1 Sulfation Abs/.tmm *ASTM D7415 >30 20.4 27.8 22.3 FLUID DEGRADATION method limit/base current history1 history2	Sulfur	ppm	ASTM D5185m	2040	2370	2656	2194
Sodium ppm ASTM D5185m 6 11 6 Potassium ppm ASTM D5185m >20 5 0 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 >20 9.9 13.0 8.1 Sulfation Abs/.imm *ASTM D7415 >30 20.4 27.8 22.3 FLUID DEGRADATION method limit/base current history1 history2	CONTAMINAN	TS	method	limit/base	current	history1	
PotassiumppmASTM D5185m>20503INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844000NitrationAbs/cm*ASTM D7624>209.913.08.1SulfationAbs/.1mm*ASTM D7415>3020.427.822.3FLUID DEGRADATION methodlimit/basecurrenthistory1history2	Silicon	ppm		>+100	-		
INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844000NitrationAbs/cm*ASTM D7624>209.913.08.1SulfationAbs/.1mm*ASTM D7415>3020.427.822.3FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	Sodium	ppm	ASTM D5185m		-	11	
Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 >20 9.9 13.0 8.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 27.8 22.3 FLUID DEGRADATION method limit/base current history1 history2	Potassium	ppm	ASTM D5185m	>20	5	0	3
NitrationAbs/cm*ASTM D7624>209.913.08.1SulfationAbs/.1mm*ASTM D7415>3020.427.822.3FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 20.4 27.8 22.3 FLUID DEGRADATION method limit/base current history1 history2	Soot %	%	*ASTM D7844		0	0	0
FLUID DEGRADATION method limit/base current history1 history2	Nitration	Abs/cm	*ASTM D7624	>20	9.9	13.0	8.1
	Sulfation	Abs/.1mm	*ASTM D7415	>30	20.4	27.8	22.3
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Oxidation Abs/.1mm ^ASIM D/414 >25 18.5 24.2 15.3	Oxidation	Abs/.1mm	*ASTM D7414	>25	18.5	24.2	15.3
Base Number (BN) mg KOH/g ASTM D2896 10.2 7.4 ▲ 2.4 5.5							

Report Id: GFL030 [WUSCAR] 05922045 (Generated: 08/12/2023 06:18:33) Rev: 1

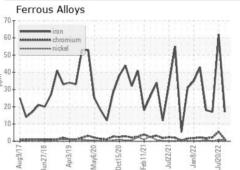


OIL ANALYSIS REPORT





VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.1	14.7	14.4	14.1
GRAPHS						

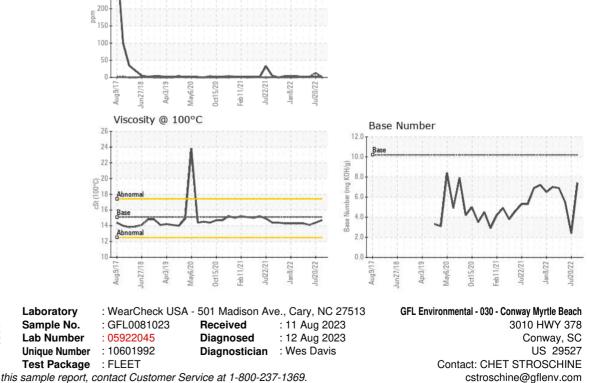


Non-ferrous Metals

ead

350 300

250



To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Certificate L2367

Submitted By: CHET STROSCHINE

T:

F: