

OIL ANALYSIS REPORT

(P633831) 3762C

Component **Natural Gas Engine**

PETRO CANADA DURON GEO LD 15W40 (30 QTS)



Sample Rating Trend



DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Sodium and/or potassium levels are high. Test for glycol is negative.

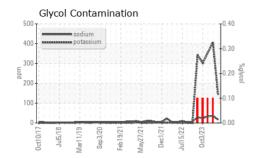
Fluid Condition

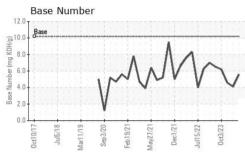
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

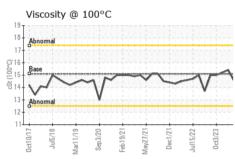
` ,		\$2017 JUI2011	Mar2019 Sep2020 Feb2	021 May2021 Dec2021 Jul2022		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0101799	GFL0090066	GFL0090100
Sample Date		Client Info		19 Feb 2024	20 Nov 2023	27 Oct 2023
Machine Age	hrs	Client Info		16764	16197	16132
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	SEVERE	SEVERE
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	29	▲ 50	27
Chromium	ppm	ASTM D5185m	>4	4	<u>11</u>	3
Nickel	ppm	ASTM D5185m	>2	<1	2	<1
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	8	<u>^</u> 21	9
Lead	ppm	ASTM D5185m	>30	2	4	3
Copper	ppm	ASTM D5185m	>35	1	2	1
Tin	ppm	ASTM D5185m	>4	1	1	<1
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base		history1	history2
	ppm ppm			current	4	
Boron	• • • • • • • • • • • • • • • • • • • •	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	current 11 0 55	4 0 58	4 0 52
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	50 5 50	current 11 0 55	4 0 58 2	4 0 52 2
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	current 11 0 55 1 661	4 0 58 2 619	4 0 52 2 519
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510	current 11 0 55 1 661 1532	4 0 58 2 619 1818	4 0 52 2 519 1513
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780	current 11 0 55 1 661 1532 831	4 0 58 2 619 1818 792	4 0 52 2 519 1513 561
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870	current 11 0 55 1 661 1532 831 1093	4 0 58 2 619 1818 792 1070	4 0 52 2 519 1513 561 890
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040	current 11 0 55 1 661 1532 831	4 0 58 2 619 1818 792	4 0 52 2 519 1513 561 890 2138
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870	current 11 0 55 1 661 1532 831 1093	4 0 58 2 619 1818 792 1070	4 0 52 2 519 1513 561 890 2138 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base	current 11 0 55 1 661 1532 831 1093 2593	4 0 58 2 619 1818 792 1070 2373	4 0 52 2 519 1513 561 890 2138
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base	current 11 0 55 1 661 1532 831 1093 2593 current 10 17	4 0 58 2 619 1818 792 1070 2373 history1 16 ▲ 36	4 0 52 2 519 1513 561 890 2138 history2 12
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base	current 11 0 55 1 661 1532 831 1093 2593 current 10 17 ▲ 145	4 0 58 2 619 1818 792 1070 2373 history1 16 ▲ 36 ▲ 407	4 0 52 2 519 1513 561 890 2138 history2 12 33 355
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100	current 11 0 55 1 661 1532 831 1093 2593 current 10 17	4 0 58 2 619 1818 792 1070 2373 history1 16 ▲ 36	4 0 52 2 519 1513 561 890 2138 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100	current 11 0 55 1 661 1532 831 1093 2593 current 10 17 ▲ 145	4 0 58 2 619 1818 792 1070 2373 history1 16 ▲ 36 ▲ 407	4 0 52 2 519 1513 561 890 2138 history2 12 33 355
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol	ppm	ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100	current 11 0 55 1 661 1532 831 1093 2593 current 10 17 ▲ 145 0.0	4 0 58 2 619 1818 792 1070 2373 history1 16 ▲ 36 ▲ 407 ● 0.10	4 0 52 2 519 1513 561 890 2138 history2 12 A 33 A 355 0.10
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m *ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D2982	50 5 50 0 560 1510 780 870 2040 limit/base >+100 >20	current 11 0 55 1 661 1532 831 1093 2593 current 10 17 ▲ 145 0.0 current	4 0 58 2 619 1818 792 1070 2373 history1 16 ▲ 36 ▲ 407 ● 0.10 history1	4 0 52 2 519 1513 561 890 2138 history2 12 △ 33 △ 355 ● 0.10 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm	ASTM D5185m *ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100 >20	current 11 0 55 1 661 1532 831 1093 2593 current 10 17 ▲ 145 0.0 current 0	4 0 58 2 619 1818 792 1070 2373 history1 16 ▲ 36 ▲ 407 ● 0.10 history1 0	4 0 52 2 519 1513 561 890 2138 history2 12 ▲ 33 ▲ 355 ● 0.10 history2 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624	50 5 50 0 560 1510 780 870 2040 limit/base >+100 >20 limit/base	Current 11 0 55 1 661 1532 831 1093 2593 Current 10 17 ▲ 145 0.0 Current 0 12.0	4 0 58 2 619 1818 792 1070 2373 history1 16 △ 36 △ 407 ● 0.10 history1 0 12.5	4 0 52 2 519 1513 561 890 2138 history2 12 33 355 0.10 history2 0 11.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624	50 5 50 0 560 1510 780 870 2040 limit/base >+100 >20	current 11 0 55 1 661 1532 831 1093 2593 current 10 17 ▲ 145 0.0 current 0 12.0 23.7	4 0 58 2 619 1818 792 1070 2373 history1 16 ▲ 36 ▲ 407 ● 0.10 history1 0 12.5 25.4	4 0 52 2 519 1513 561 890 2138 history2 12 △ 33 △ 355 ● 0.10 history2 0 11.9 23.0



OIL ANALYSIS REPORT





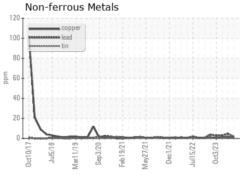


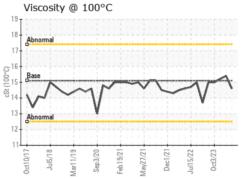
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

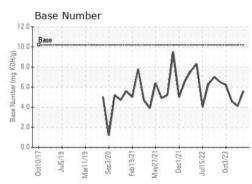
FLUID PROPERTIES		method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	15.1	14.6	15.41	15.2	

GRAPHS

Ferrous Alloys











Certificate L2367

Laboratory Sample No. Lab Number : 06095359

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Test Package : FLEET

: GFL0101799 Unique Number : 10888212

Received Tested

: 21 Feb 2024 Diagnosed

: 23 Feb 2024 : 24 Feb 2024 - Don Baldridge

GFL Environmental - 030 - Conway Myrtle Beach

3010 HWY 378 Conway, SC US 29527

Contact: ARCILIO RUEZ

aruiz@gflenv.com

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)

T:

F: