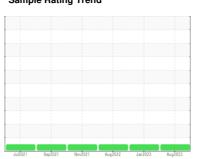


# **OIL ANALYSIS REPORT**

### Sample Rating Trend



NORMAL



Machine Id 744008

Component

**Natural Gas Engine** 

PETRO CANADA DURON GEO LD 15W40 (--- LTR)

## 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.

( LTR)		Jul2021	Sep2021 Nov2021	Aug2022 Jan2023	Aug2023	
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0085368	GFL0066755	GFL0057099
Sample Date		Client Info		04 Aug 2023	19 Jan 2023	15 Aug 2022
Machine Age	hrs	Client Info		5288	4178	3277
Oil Age	hrs	Client Info		5288	901	1499
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	13	11	15
Chromium	ppm	ASTM D5185m	>4	2	1	2
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	<1	0	<1
Aluminum	ppm	ASTM D5185m	>9	2	3	4
Lead	ppm	ASTM D5185m	>30	2	1	4
Copper	ppm	ASTM D5185m	>35	2	<1	2
Tin	ppm	ASTM D5185m	>4	<1	1	1
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
						111
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 4	history1 8	nistory2 14
	ppm ppm					
Boron		ASTM D5185m	50	4	8	14
Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 5	4 0	8	14 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	4 0 57	8 2 51	14 <1 60
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	4 0 57 <1	8 2 51 <1	14 <1 60 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	4 0 57 <1 607	8 2 51 <1 503	14 <1 60 <1 604
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510	4 0 57 <1 607 1798	8 2 51 <1 503 1459	14 <1 60 <1 604 1726
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	4 0 57 <1 607 1798 747	8 2 51 <1 503 1459 644	14 <1 60 <1 604 1726 772
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	4 0 57 <1 607 1798 747	8 2 51 <1 503 1459 644 913	14 <1 60 <1 604 1726 772 1039
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	4 0 57 <1 607 1798 747 1052 3037	8 2 51 <1 503 1459 644 913 2644	14 <1 60 <1 604 1726 772 1039 2601
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	50 5 50 0 560 1510 780 870 2040	4 0 57 <1 607 1798 747 1052 3037 current	8 2 51 <1 503 1459 644 913 2644 history1	14 <1 60 <1 604 1726 772 1039 2601 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base	4 0 57 <1 607 1798 747 1052 3037 current	8 2 51 <1 503 1459 644 913 2644 history1 4	14 <1 60 <1 604 1726 772 1039 2601 history2
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	4 0 57 <1 607 1798 747 1052 3037 current 4 11	8 2 51 <1 503 1459 644 913 2644 history1 4	14 <1 60 <1 604 1726 772 1039 2601 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100 >20	4 0 57 <1 607 1798 747 1052 3037 current 4 11	8 2 51 <1 503 1459 644 913 2644 history1 4 7	14 <1 60 <1 604 1726 772 1039 2601 history2 4 10 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100 	4 0 57 <1 607 1798 747 1052 3037 current 4 11 6	8 2 51 <1 503 1459 644 913 2644 history1 4 7 4	14 <1 60 <1 604 1726 772 1039 2601 history2 4 10 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  method  *ASTM D5185m  *ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  *ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100 >20 limit/base	4 0 57 <1 607 1798 747 1052 3037 current 4 11 6 current 0.1	8 2 51 <1 503 1459 644 913 2644 history1 4 7 4 history1 0.1	14 <1 60 <1 604 1726 772 1039 2601 history2 4 10 3 history2 0.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  Method  *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  Method  *ASTM D7844  *ASTM D7624  *ASTM D76145	50 5 50 0 560 1510 780 870 2040 limit/base >+100 >20 limit/base	4 0 57 <1 607 1798 747 1052 3037 current 4 11 6 current 0.1 9.7	8 2 51 <1 503 1459 644 913 2644 history1 4 7 4 history1 0.1 11.5	14 <1 60 <1 604 1726 772 1039 2601 history2 4 10 3 history2 0.1 12.6

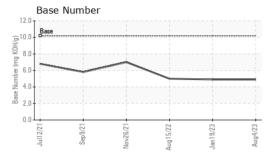
4.9

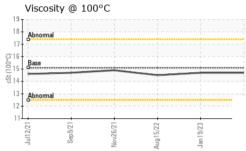
4.9

Base Number (BN) mg KOH/g ASTM D2896 10.2



# **OIL ANALYSIS REPORT**

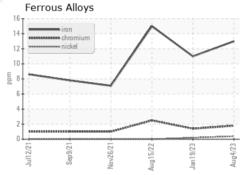


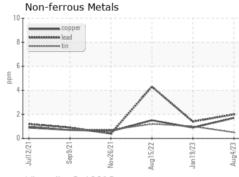


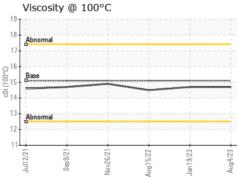
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	LIGHT	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

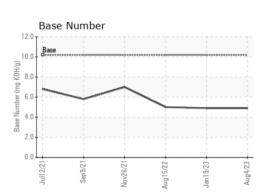
L LOID PROPI	EHILO	method			riistory i	HISTORYZ
Visc @ 100°C	cSt	ASTM D445	15.1	14.7	14.7	14.5

## **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number Test Package : FLEET

Unique Number : 10590246

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0085368 : 05918332

Received Diagnosed

: 08 Aug 2023 : 08 Aug 2023 Diagnostician : Wes Davis

GFL Environmental - 882 - Gainesville 5002 SW 41st Blvd Gainesville, FL US 32608

Contact: ROBERT CLARK robert.clark@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)

Report Id: GFL882 [WUSCAR] 05918332 (Generated: 08/08/2023 18:48:06) Rev: 1

Submitted By: STEPHEN WEIL

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