

# **OIL ANALYSIS REPORT**

Sample Rating Trend

**GLYCOL** 

Machine Id

# 924026-260244

Diesel Engine

PETRO CANADA DURON GEO LD 15W40 (

### **DIAGNOSIS**

#### Recommendation

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

#### Wear

All component wear rates are normal.

#### Contamination

Sodium and/or potassium levels are high.

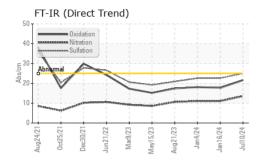
#### Fluid Condition

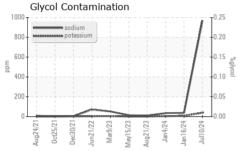
The BN result indicates that there is suitable alkalinity remaining in the oil.

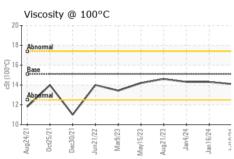
( LTR)		Aug2021 Oct2	021 Dec2021 Jun2022 Mar2	023 May2023 Aug2023 Jan2024 Jan2	024 Jul2024	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0096022	GFL0095989	GFL0095983
Sample Date		Client Info		10 Jul 2024	16 Jan 2024	04 Jan 2024
Machine Age	hrs	Client Info		2166	1808	1798
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	50	29	28
Chromium	ppm	ASTM D5185m	>20	2	2	2
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	3	3
Lead	ppm	ASTM D5185m	>40	0	<1	1
Copper	ppm	ASTM D5185m	>330	9	2	2
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	50	4	9	12
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	50 5	4 0	9	12
				-		
Barium	ppm	ASTM D5185m	5 50	0	0	0
Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m	5 50	0 95	0 48	0 55
Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0	0 95 <1	0 48 1	0 55 2
Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560	0 95 <1 515	0 48 1 510	0 55 2 553
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560 1510	0 95 <1 515 1460	0 48 1 510 1528	0 55 2 553 1526
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560 1510 780	0 95 <1 515 1460 649	0 48 1 510 1528 660	0 55 2 553 1526 782
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	5 50 0 560 1510 780 870	0 95 <1 515 1460 649 964	0 48 1 510 1528 660 884	0 55 2 553 1526 782 994
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	5 50 0 560 1510 780 870 2040	0 95 <1 515 1460 649 964 2950	0 48 1 510 1528 660 884 2157	0 55 2 553 1526 782 994 2455
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm 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	5 50 0 560 1510 780 870 2040	0 95 <1 515 1460 649 964 2950	0 48 1 510 1528 660 884 2157 history1	0 55 2 553 1526 782 994 2455 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	5 50 0 560 1510 780 870 2040	0 95 <1 515 1460 649 964 2950 current	0 48 1 510 1528 660 884 2157 history1	0 55 2 553 1526 782 994 2455 history2 6
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	5 50 0 560 1510 780 870 2040 limit/base >25	0 95 <1 515 1460 649 964 2950  current 15  969	0 48 1 510 1528 660 884 2157 history1 6 37	0 55 2 553 1526 782 994 2455 history2 6 35
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	5 50 0 560 1510 780 870 2040 limit/base >25	0 95 <1 515 1460 649 964 2950  current 15  969  39	0 48 1 510 1528 660 884 2157 history1 6 37	0 55 2 553 1526 782 994 2455 history2 6 35
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol	ppm	ASTM D5185m  method ASTM D5185m	5 50 0 560 1510 780 870 2040 limit/base >25	0 95 <1 515 1460 649 964 2950  current 15  969 39 NEG	0 48 1 510 1528 660 884 2157 history1 6 37 7	0 55 2 553 1526 782 994 2455 history2 6 35 4 NEG
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm	ASTM D5185m  method ASTM D5185m	5 50 0 560 1510 780 870 2040  limit/base >25 >20  limit/base >3	0 95 <1 515 1460 649 964 2950 current 15 ▲ 969 ▲ 39 NEG	0 48 1 510 1528 660 884 2157 history1 6 37 7 NEG	0 55 2 553 1526 782 994 2455 history2 6 35 4 NEG
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm	ASTM D5185m *ASTM D5185m	5 50 0 560 1510 780 870 2040  limit/base >25 >20  limit/base >3	0 95 <1 515 1460 649 964 2950 current 15 ▲ 969 ▲ 39 NEG current 0.1	0 48 1 510 1528 660 884 2157 history1 6 37 7 NEG history1	0 55 2 553 1526 782 994 2455 history2 6 35 4 NEG history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur  CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm	ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D76145	5 50 0 560 1510 780 870 2040 limit/base >25 >20 limit/base >3 >20	0 95 <1 515 1460 649 964 2950  current 15  969 39 NEG  current  0.1 13.6	0 48 1 510 1528 660 884 2157 history1 6 37 7 NEG history1 1.1	0 55 2 553 1526 782 994 2455 history2 6 35 4 NEG history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D76145	5 50 0 560 1510 780 870 2040  limit/base >25 >20  limit/base >3 >20 >30	0 95 <1 515 1460 649 964 2950 current 15 ▲ 969 ▲ 39 NEG current 0.1 13.6 25.0	0 48 1 510 1528 660 884 2157 history1 6 37 7 NEG history1 1.1 11.1 22.6	0 55 2 553 1526 782 994 2455 history2 6 35 4 NEG history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm	ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7624 *ASTM D7415 *Method	5 50 0 560 1510 780 870 2040  limit/base >25  >20  limit/base >3 >20 >30  limit/base	0 95 <1 515 1460 649 964 2950  current 15  969 39 NEG  current 0.1 13.6 25.0  current	0 48 1 510 1528 660 884 2157 history1 6 37 7 NEG history1 1.1 11.1 22.6 history1	0 55 2 553 1526 782 994 2455 history2 6 35 4 NEG history2 1 11.1 22.6 history2

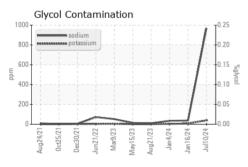


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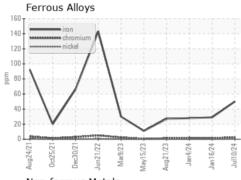


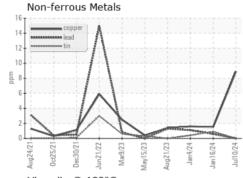


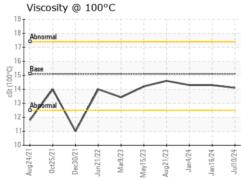
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

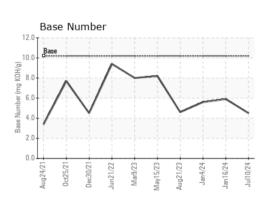
FLUID PROPERTIES		method	iiiiii/base	current	riistory i	HIStory
Visc @ 100°C	cSt	ASTM D445	15.1	14.1	14.3	14.3

#### **GRAPHS**













Laboratory

Sample No. Lab Number : 06232937 Unique Number : 11116430

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0096022

Received **Tested** Diagnosed

: 11 Jul 2024 : 15 Jul 2024 : 15 Jul 2024 - Jonathan Hester

1378 South Volusia Ave Orange City, FL US 32763

Contact: JEFF COOPERSMITH JCOOPERSMITH@GFLENV.COM T: (386)503-8468

GFL Environmental - 883 - Orange City

Test Package : FLEET ( Additional Tests: Glycol ) Certificate 12367 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)