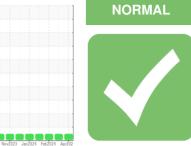


# **OIL ANALYSIS REPORT**

Sample Rating Trend



#### Machine Id

# 227055-632109

## Diesel Engine

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

### 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 INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0115376	GFL0115355	GFL0110885
Sample Date		Client Info		04 Apr 2024	29 Feb 2024	21 Feb 2024
Machine Age	hrs	Client Info		7419	7282	7262
Oil Age	hrs	Client Info		20288	0	20288
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	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
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	20	20	26
Chromium	ppm	ASTM D5185m	>20	<1	<1	2
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	5	4	6
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	0	1	2
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 14	history1 16	history2 16
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	14	16	16
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	14 0	16 0	16 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	14 0 61 <1 950	16 0 66 <1 1115	16 <1 72 <1 919
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	14 0 61 <1	16 0 66 <1	16 <1 72 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	14 0 61 <1 950 1077 1054	16 0 66 <1 1115 1271 1184	16 <1 72 <1 919 1089 1054
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	14 0 61 <1 950 1077	16 0 66 <1 1115 1271 1184 1413	16 <1 72 <1 919 1089 1054 1216
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	0 0 60 0 1010 1070 1150	14 0 61 <1 950 1077 1054	16 0 66 <1 1115 1271 1184	16 <1 72 <1 919 1089 1054
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	0 0 60 0 1010 1070 1150 1270	14 0 61 <1 950 1077 1054 1247	16 0 66 <1 1115 1271 1184 1413	16 <1 72 <1 919 1089 1054 1216
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	0 0 60 1010 1070 1150 1270 2060	14 0 61 <1 950 1077 1054 1247 3600	16 0 66 <1 1115 1271 1184 1413 3558	16 <1 72 <1 919 1089 1054 1216 3235
Boron 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 <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 imit/base	14 0 61 <1 950 1077 1054 1247 3600 current	16 0 66 <1 1115 1271 1184 1413 3558 history1	16 <1 72 <1 919 1089 1054 1216 3235 history2 9 <1
Boron 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 imit/base	14 0 61 <1 950 1077 1054 1247 3600 current 8	16 0 66 <1 1115 1271 1184 1413 3558 history1 6	16 <1 72 <1 919 1089 1054 1216 3235 history2 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 imit/base	14 0 61 <1 950 1077 1054 1247 3600 current 8 13	16 0 66 <1 1115 1271 1184 1413 3558 history1 6 2	16 <1 72 <1 919 1089 1054 1216 3235 history2 9 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	14 0 61 <1 950 1077 1054 1247 3600 current 8 13 3	16 0 66 <1 1115 1271 1184 1413 3558 history1 6 2 <1 6 2 <1 history1 0.4	16 <1 72 <1 919 1089 1054 1216 3235 history2 9 <1 3
Boron 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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	14 0 61 <1 950 1077 1054 1247 3600 current 8 13 3 3	16 0 66 <1 1115 1271 1184 1413 3558 history1 6 2 <1 <1 history1	16 <1 72 <1 919 1089 1054 1216 3235 history2 9 <1 3 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 ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	14 0 61 <1 950 1077 1054 1247 3600 current 8 13 3 3 Current 0.3	16 0 66 <1 1115 1271 1184 1413 3558 history1 6 2 <1 6 2 <1 history1 0.4	16 <1 72 <1 919 1089 1054 1216 3235 history2 9 <1 3 3 history2 0.5
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 ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	14 0 61 <1 950 1077 1054 1247 3600 current 8 13 3 current 0.3 6.8	16 0 66 <1 1115 1271 1184 1413 3558 history1 6 2 <1 6 2 <1 history1 0.4 8.4	16 <1 72 <1 919 1089 1054 1216 3235 history2 9 <1 3 history2 0.5 9.9
Boron 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >3 >20 >3 >20	14 0 61 <1 950 1077 1054 1247 3600 <u>current</u> 8 13 3 3 <u>current</u> 0.3 6.8 18.5	16 0 66 <1 1115 1271 1184 1413 3558 history1 6 2 <1 6 2 <1 history1 0.4 8.4 19.3	16 <1 72 <1 919 1089 1054 1216 3235 <b>history2</b> 9 <1 3 <b>history2</b> 0.5 9.9 20.1

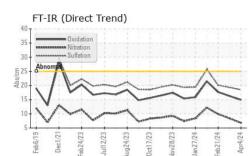


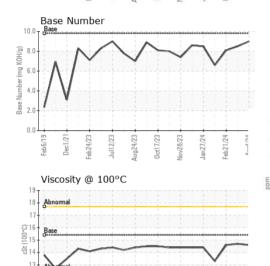
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11 Feb6/19 -

# **OIL ANALYSIS REPORT**





Oct17/23 /28/23

Aug24/23

eb21/24

an27/24

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	>0.2	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	15.4	14.6	14.7	14.6

GRAPHS

Dec1/21 Feb24/23

Dec1/21

Feb24/23

Feb6/19

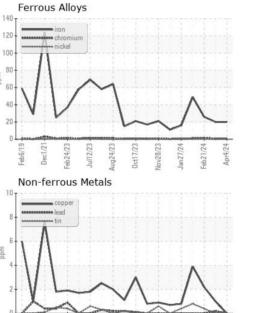
Feb 6/

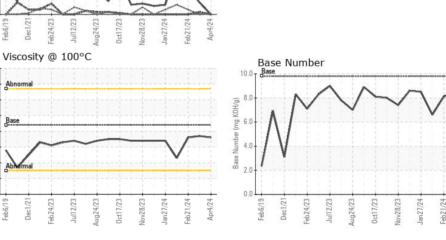
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Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 814 - Little Rock Hauling Sample No. : GFL0115376 Received : 10 Apr 2024 4005 Hwy 161 N. Lab Number : 06145163 Tested : 11 Apr 2024 LIttle Rock, AR Unique Number : 10969971 Diagnosed : 11 Apr 2024 - Wes Davis US 72117 Contact: Brad Koenig Test Package : FLEET Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. bkoenig@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Report Id: GFL814 [WUSCAR] 06145163 (Generated: 04/11/2024 17:45:23) Rev: 1

Submitted By: Nicole Walls Page 2 of 2

Apr4/24