

# **OIL ANALYSIS REPORT**

# Sample Rating Trend

NORMAL





Machine Id **527018-7011** 

Component

Diesel Engine

PETRO CANADA DURON SHP 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

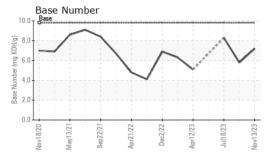
# **Fluid Condition**

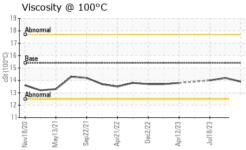
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATIO <u>N</u>	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0058096	GFL0058050	GFL0070905
Sample Date		Client Info		13 Nov 2023	10 Aug 2023	18 Jul 2023
Machine Age	hrs	Client Info		17526	382161	16786
Oil Age	hrs	Client Info		576	733	569
Oil Changed		Client Info		N/A	Changed	N/A
Sample Status				NORMAL	ABNORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	21	30	8
Chromium	ppm	ASTM D5185m	>20	<1	1	<1
Nickel	ppm	ASTM D5185m	>5	4	<u> </u>	0
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	14	10	0
Lead	ppm	ASTM D5185m	>40	0	2	<1
Copper	ppm	ASTM D5185m	>330	<1	2	17
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVEO.		ام مطلم مص	limit/base		la la La mud	hiotom/0
ADDITIVES		method	ilmit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	3	<1	4
	ppm					
Boron	• •	ASTM D5185m	0	3	<1	4
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	3 0	<1	4
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	3 0 59	<1 0 67	4 0 67
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	3 0 59 <1	<1 0 67	4 0 67 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	3 0 59 <1 994	<1 0 67 1 1043	4 0 67 <1 994
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	3 0 59 <1 994 1057	<1 0 67 1 1043 1305	4 0 67 <1 994 1232
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	0 0 60 0 1010 1070 1150	3 0 59 <1 994 1057 1075	<1 0 67 1 1043 1305 1098	4 0 67 <1 994 1232 1067
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	3 0 59 <1 994 1057 1075	<1 0 67 1 1043 1305 1098 1457	4 0 67 <1 994 1232 1067 1289
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	3 0 59 <1 994 1057 1075 1350 3055	<1 0 67 1 1043 1305 1098 1457 3613	4 0 67 <1 994 1232 1067 1289 3630
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	3 0 59 <1 994 1057 1075 1350 3055	<1 0 67 1 1043 1305 1098 1457 3613 history1	4 0 67 <1 994 1232 1067 1289 3630 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	3 0 59 <1 994 1057 1075 1350 3055 current	<1 0 67 1 1043 1305 1098 1457 3613 history1	4 0 67 <1 994 1232 1067 1289 3630 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	3 0 59 <1 994 1057 1075 1350 3055 current 10	<1 0 67 1 1043 1305 1098 1457 3613 history1	4 0 67 <1 994 1232 1067 1289 3630 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	3 0 59 <1 994 1057 1075 1350 3055 current 10 7	<1 0 67 1 1043 1305 1098 1457 3613 history1 12 12 8	4 0 67 <1 994 1232 1067 1289 3630 history2 4 7
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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	3 0 59 <1 994 1057 1075 1350 3055 current 10 7	<1 0 67 1 1043 1305 1098 1457 3613 history1 12 12 8	4 0 67 <1 994 1232 1067 1289 3630 history2 4 7 <1
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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	3 0 59 <1 994 1057 1075 1350 3055 current 10 7 7	<1 0 67 1 1043 1305 1098 1457 3613 history1 12 12 8 history1 1.1	4 0 67 <1 994 1232 1067 1289 3630 history2 4 7 <1 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m  Method  *ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	3 0 59 <1 994 1057 1075 1350 3055 current 10 7 7 current 1.1 8.7	<1 0 67 1 1043 1305 1098 1457 3613 history1 12 12 8 history1 1.1 9.8	4 0 67 <1 994 1232 1067 1289 3630 history2 4 7 <1 history2 0.3 7.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m  Method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30	3 0 59 <1 994 1057 1075 1350 3055 current 10 7 7 current 1.1 8.7 20.6	<1 0 67 1 1043 1305 1098 1457 3613 history1 12 12 8 history1 1.1 9.8 22.7	4 0 67 <1 994 1232 1067 1289 3630 history2 4 7 <1 history2 0.3 7.5 19.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m  Method  ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  Method  *ASTM D7844  *ASTM D7624  *ASTM D7415  Method	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30 limit/base >25	3 0 59 <1 994 1057 1075 1350 3055 current 10 7 7 current 1.1 8.7 20.6	<1 0 67 1 1043 1305 1098 1457 3613 history1 12 12 8 history1 1.1 9.8 22.7 history1	4 0 67 <1 994 1232 1067 1289 3630 history2 4 7 <1 history2 0.3 7.5 19.6 history2



# **OIL ANALYSIS REPORT**

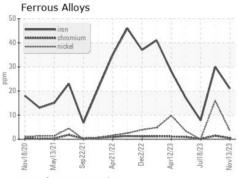


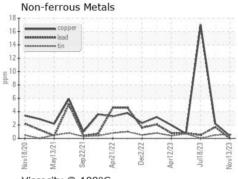


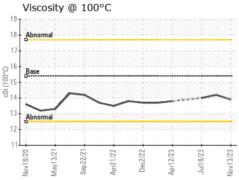
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

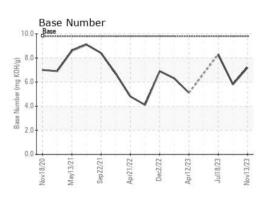
FLUID PROPE	RTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	14.2	14.0

## **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10741198 Test Package : FLEET

: GFL0058096 : 06007436

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

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 14 Nov 2023 Diagnosed : 15 Nov 2023

Diagnostician : Wes Davis

GFL Environmental - 657 - Charlottesville Hauling

5498 Richmond Road Troy, VA US 22974

Contact: Brian Ulickas bulickas@gflenv.com

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\* - 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)

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