

## **OIL ANALYSIS REPORT**

Sample Rating Trend





## Component

Diesel Engine

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.

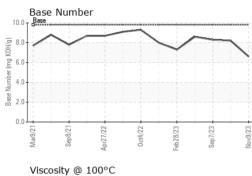
## Fluid Condition

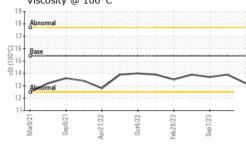
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0090478	GFL0090467	GFL0090534
Sample Date		Client Info		09 Nov 2023	20 Oct 2023	07 Sep 2023
Machine Age	hrs	Client Info		10607	10454	10175
Oil Age	hrs	Client Info		580	600	10175
Oil Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<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	>100	7	33	24
Chromium	ppm	ASTM D5185m	>20	<1	3	3
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	1	3	2
Lead	ppm	ASTM D5185m	>40	<1	<1	0
Copper	ppm	ASTM D5185m	>330	<1	<1	0
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	ASTM D5185m	limit/base	current 8	history1 5	6
	ppm ppm					
Boron		ASTM D5185m	0	8	5	6
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	8 0	5 10	6 0 64 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	8 0 60	5 10 66	6 0 64
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	8 0 60 <1	5 10 66 <1	6 0 64 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	8 0 60 <1 870	5 10 66 <1 887	6 0 64 <1 969
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	8 0 60 <1 870 1048	5 10 66 <1 887 1072	6 0 64 <1 969 1108
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	0 0 60 0 1010 1070 1150	8 0 60 <1 870 1048 973	5 10 66 <1 887 1072 868	6 0 64 <1 969 1108 1021
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	0 0 60 0 1010 1070 1150 1270	8 0 60 <1 870 1048 973 1215	5 10 66 <1 887 1072 868 1193	6 0 64 <1 969 1108 1021 1241
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 0 1010 1070 1150 1270 2060	8 0 60 <1 870 1048 973 1215 2981	5 10 66 <1 887 1072 868 1193 2982	6 0 64 <1 969 1108 1021 1241 3525
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	8 0 60 <1 870 1048 973 1215 2981 current	5 10 66 <1 887 1072 868 1193 2982 history1	6 0 64 <1 969 1108 1021 1241 3525 history2
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 <b>method</b>	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	8 0 60 <1 870 1048 973 1215 2981 current 3	5 10 66 <1 887 1072 868 1193 2982 history1 3	6 0 64 <1 969 1108 1021 1241 3525 history2 3
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 kimit/base >25	8 0 60 <1 870 1048 973 1215 2981 current 3 10	5 10 66 <1 887 1072 868 1193 2982 history1 3 2	6 0 64 <1 969 1108 1021 1241 3525 history2 3 4
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 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	8 0 60 <1 870 1048 973 1215 2981 current 3 10 2	5 10 66 <1 887 1072 868 1193 2982 history1 3 2 4	6 0 64 <1 969 1108 1021 1241 3525 history2 3 4 1
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 ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	8 0 60 <1 870 1048 973 1215 2981 current 3 10 2 2 current	5 10 66 <1 887 1072 868 1193 2982 history1 3 2 2 4 4	6 0 64 <1 969 1108 1021 1241 3525 history2 3 4 1 1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	8 0 60 <1 870 1048 973 1215 2981 <u>current</u> 3 10 2 <u>current</u> 0.5	5 10 66 <1 887 1072 868 1193 2982 history1 3 2 4 history1 1	6 0 64 <1 969 1108 1021 1241 3525 history2 3 4 1 1 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	8 0 60 <1 870 1048 973 1215 2981 current 3 10 2 current 0.5 8.7	5 10 66 <1 887 1072 868 1193 2982 history1 3 2 2 4 history1 1 8.5	6 0 64 <1 969 1108 1021 1241 3525 history2 3 4 1 1 history2 0.5 6.6
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	8 0 60 <1 870 1048 973 1215 2981 <u>current</u> 3 10 2 2 <u>current</u> 0.5 8.7 16.1	5 10 66 <1 887 1072 868 1193 2982 history1 3 2 4 history1 1 8.5 20.5	6 0 64 <1 969 1108 1021 1241 3525 history2 3 4 1 1 history2 0.5 6.6 18.5
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 TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 225 20 225 20 220 20 33 20 30 20 30 20 30 20 20 20 20 20 20 20 20 20 20 20 20 20	8 0 60 <1 870 1048 973 1215 2981 current 3 10 2 current 0.5 8.7 16.1 current	5 10 66 <1 887 1072 868 1193 2982 history1 3 2 2 4 history1 1 8.5 20.5 history1	6 0 64 <1 969 1108 1021 1241 3525 history2 3 4 1 1 history2 0.5 6.6 18.5 history2

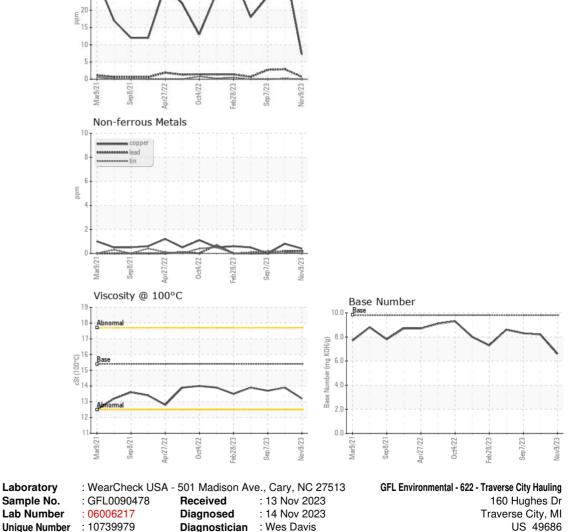


# **OIL ANALYSIS REPORT**





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
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROP	ERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.2	13.9	13.7
GRAPHS						
Ferrous Alloys						
<sup>5</sup> I						
0 - chromium		A /	1			
5 nickel	/	$\langle \rangle$	1.1.			





Test Package : FLEET 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)

Certificate L2367

Submitted By: TECHNICIAN ACCOUNT