

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.

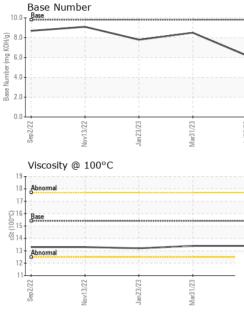
Fluid Condition

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

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0072500	GFL0072495	GFL0072514
Sample Date		Client Info		28 Jul 2023	31 Mar 2023	23 Jan 2023
Machine Age	hrs	Client Info		3921	2804	2347
Oil Age	hrs	Client Info		601	500	601
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
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	21	8	12
Chromium	ppm	ASTM D5185m	>4	<1	0	0
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	7	4	7
Lead	ppm	ASTM D5185m	>45	0	0	0
Copper	ppm	ASTM D5185m	>85	6	<1	2
Tin	ppm	ASTM D5185m	>4	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
			11 11 11			
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	limit/base	current 8	history1 9	history2 14
	ppm ppm		0			· · · · · ·
Boron		ASTM D5185m	0	8	9	14
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	8 0	9 0	14 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	8 0 65	9 0 60	14 0 67
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	8 0 65 <1	9 0 60 <1	14 0 67 <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 65 <1 1096	9 0 60 <1 918	14 0 67 <1 887
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 65 <1 1096 1254	9 0 60 <1 918 1117	14 0 67 <1 887 1176
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 1010 1070 1150	8 0 65 <1 1096 1254 1130	9 0 60 <1 918 1117 969	14 0 67 <1 887 1176 978
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	8 0 65 <1 1096 1254 1130 1462	9 0 60 <1 918 1117 969 1172	14 0 67 <1 887 1176 978 1181
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 65 <1 1096 1254 1130 1462 3842	9 0 60 <1 918 1117 969 1172 3184	14 0 67 <1 887 1176 978 1181 2954
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	0 0 60 1010 1070 1150 1270 2060	8 0 65 <1 1096 1254 1130 1462 3842 current	9 0 60 <1 918 1117 969 1172 3184 history1	14 0 67 <1 887 1176 978 1181 2954 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 imit/base >30	8 0 65 <1 1096 1254 1130 1462 3842 <u>current</u> 4	9 0 60 <1 918 1117 969 1172 3184 history1 4	14 0 67 <1 887 1176 978 1181 2954 history2 5
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 ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 imit/base >30	8 0 65 <1 1096 1254 1130 1462 3842 <u>current</u> 4 6	9 0 60 <1 918 1117 969 1172 3184 history1 4 5	14 0 67 <1 887 1176 978 1181 2954 history2 5 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 TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >30	8 0 65 <1 1096 1254 1130 1462 3842 <u>current</u> 4 6 6	9 0 60 <1 918 1117 969 1172 3184 history1 4 5 8	14 0 67 <1 887 1176 978 1181 2954 history2 5 3 12
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 imit/base >30	8 0 65 <1 1096 1254 1130 1462 3842 current 4 6 6 6	9 0 60 <1 918 1117 969 1172 3184 history1 4 5 8 8	14 0 67 <1 887 1176 978 1181 2954 history2 5 3 12 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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >30 >20 Imit/base >3 >20	8 0 65 <1 1096 1254 1130 1462 3842 <u>current</u> 4 6 6 6 <u>current</u> 0.6	9 0 60 <1 918 1117 969 1172 3184 history1 4 5 8 <u>history1</u> 0.3	14 0 67 <1 887 1176 978 1181 2954 history2 5 3 12 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 Imit/base >30 >20 Imit/base >3 >20	8 0 65 <1 1096 1254 1130 1462 3842 <i>current</i> 4 6 6 6 <i>current</i> 0.6 9.6	9 0 60 <1 918 1117 969 1172 3184 history1 4 5 8 <u>history1</u> 0.3 7.9	14 0 67 <1 887 1176 978 1181 2954 history2 5 3 12 5 3 12 history2 0.5 9.1
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 imit/base >30 20 imit/base >3 >20 >3	8 0 65 <1 1096 1254 1130 1462 3842 <u>current</u> 4 6 6 6 <u>current</u> 0.6 9.6 22.0	9 0 60 <1 918 1117 969 1172 3184 history1 4 5 8 <u>history1</u> 0.3 7.9 19.2	14 0 67 <1 887 1176 978 1181 2954 history2 5 3 12 history2 0.5 9.1 21.4
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 ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 2060 2060 2060 2060 200 200 200 200 20	8 0 65 <1 1096 1254 1130 1462 3842 <i>current</i> 4 6 6 6 <i>current</i> 0.6 9.6 22.0	9 0 60 <1 918 1117 969 1172 3184 history1 4 5 8 history1 0.3 7.9 19.2 history1	14 0 67 <1 887 1176 978 1181 2954 history2 5 3 12 history2 0.5 9.1 21.4 history2



OIL ANALYSIS REPORT



		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	ERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.4	13.4	13.2
Sep 2/2 =	Jan 23/23	Mar31/23	Jui28/23			
ZZZZ das Non-ferrous Meta		Mar31/23	7ni28/23			
Non-ferrous Meta		Ma31/23	Jui28/23			
Non-ferrous Meta		Mail 123	Pu158/23			

Base Number

Nov13/22

10.0

8. (mg KOH/g)

6 | umber 4 (Base

0.0

Sep2/22

Jul28/23 -

: 08 Aug 2023

Mar31/23



: 05918402 : 09 Aug 2023 Unique Number : 10590316 Diagnostician : Wes Davis Test Package : FLEET Contact: LEONARD KOZLEUCHAR Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. leonard.kozleuchar@gflenv.com * - 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)

Jan23/23

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

Received

Diagnosed

Viscosity @ 100°C

Nov13/22

19

18 17

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Laboratory Sample No.

Lab Number

Sep2/22.

: GFL0072500

Submitted By: LEONARD KOZLEUCHAR

Jan23/23 .

GFL Environmental - 912 - Fort Atkinson HC

lul28/23

F:

Mar31/23

1215 Klement St.

Fort Atkinson, WI

T: (262)210-6528

US 53538