

OIL ANALYSIS REPORT

Sample Rating Trend





Component Diesel Engine Fluid

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

DIAGNOSIS
Recommendation

Resample at the next service interval to monitor.

Machine Id

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.

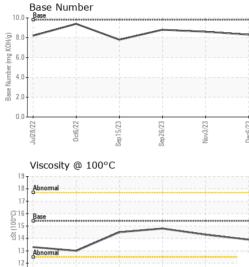
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0104358	GFL0084962	GFL0084986
Sample Date		Client Info		06 Dec 2023	03 Nov 2023	26 Sep 2023
Machine Age	hrs	Client Info		14382	14127	13872
Oil Age	hrs	Client Info		255	14051	13872
Oil Changed	1110	Client Info		N/A	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL
				NOTIMAL	NOTIVIAL	-
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	0.0	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	10	22	32
Chromium	ppm	ASTM D5185m	>20	0	3	2
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>30	1	30	4
Lead	ppm	ASTM D5185m	>30	0	0	0
Copper	ppm	ASTM D5185m		0	6	26
Tin	ppm	ASTM D5185m	>15	0	<1	2
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	nnm	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	0	1	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	0 0	1 0	0 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0 54	1 0 56	0 0 67
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 54 0	1 0 56 <1	0 0 67 2
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	0 0 54 0 996	1 0 56 <1 940	0 0 67 2 1090
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	0 0 54 0 996 1060	1 0 56 <1 940 1047	0 0 67 2 1090 1189
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	0 0 54 0 996 1060 1060	1 0 56 <1 940 1047 971	0 0 67 2 1090 1189 1068
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	0 0 54 0 996 1060 1060 1252	1 0 56 <1 940 1047	0 0 67 2 1090 1189
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	0 0 54 0 996 1060 1060 1252 3080	1 0 56 <1 940 1047 971 1250 2833	0 0 67 2 1090 1189 1068 1404 2390
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	0 0 54 0 996 1060 1060 1252 3080 current	1 0 56 <1 940 1047 971 1250 2833 history1	0 0 67 2 1090 1189 1068 1404 2390 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 0 1010 1070 1150 1270 2060	0 0 54 0 996 1060 1060 1252 3080 current 2	1 0 56 <1 940 1047 971 1250 2833 history1 10	0 0 67 2 1090 1189 1068 1404 2390 history2 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >30	0 0 54 0 996 1060 1060 1252 3080 current 2 0	1 0 56 <1 940 1047 971 1250 2833 history1 10 40	0 0 67 2 1090 1189 1068 1404 2390 history2 7 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >30	0 0 54 0 996 1060 1060 1252 3080 <u>current</u> 2 0 0	1 0 56 <1 940 1047 971 1250 2833 history1 10 40 52	0 0 67 2 1090 1189 1068 1404 2390 history2 7 5 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	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	0 0 54 0 996 1060 1252 3080 current 2 0 0 0	1 0 56 <1 940 1047 971 1250 2833 history1 10 40 52 history1	0 0 67 2 1090 1189 1068 1404 2390 history2 7 5 6 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	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 >30 limit/base >20	0 0 54 0 996 1060 1252 3080 current 2 0 0 0 0 current	1 0 56 <1 940 1047 971 1250 2833 history1 10 40 52 history1 0.7	0 0 67 2 1090 1189 1068 1404 2390 history2 7 5 6 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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >30 220 imit/base >3 20	0 0 54 0 996 1060 1252 3080 <u>current</u> 2 0 0 0 <u>current</u> 0.3 6.6	1 0 56 <1 940 1047 971 1250 2833 history1 10 40 52 history1 0.7 8.0	0 0 67 2 1090 1189 1068 1404 2390 history2 7 5 6 6 history2 0.5 6.7
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 limit/base >30 limit/base >20	0 0 54 0 996 1060 1252 3080 current 2 0 0 0 0 current	1 0 56 <1 940 1047 971 1250 2833 history1 10 40 52 history1 0.7	0 0 67 2 1090 1189 1068 1404 2390 history2 7 5 6 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 >30 220 imit/base >3 20	0 0 54 0 996 1060 1252 3080 <u>current</u> 2 0 0 0 <u>current</u> 0.3 6.6	1 0 56 <1 940 1047 971 1250 2833 history1 10 40 52 history1 0.7 8.0	0 0 67 2 1090 1189 1068 1404 2390 history2 7 5 6 6 history2 0.5 6.7
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	0 0 54 0 996 1060 1252 3080 <u>current</u> 2 0 0 0 0 <u>current</u> 0.3 6.6 18.8	1 0 56 <1 940 1047 971 1250 2833 history1 10 40 52 history1 0.7 8.0 19.3	0 0 67 2 1090 1189 1068 1404 2390 history2 7 5 6 history2 0.5 6.7 19.3
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 D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 imit/base >30 >20 imit/base >3 >20 >30	0 0 54 0 996 1060 1252 3080 <i>current</i> 2 0 0 0 <i>current</i> 0.3 6.6 18.8	1 0 56 <1 940 1047 971 1250 2833 history1 10 40 52 history1 0.7 8.0 19.3 history1	0 0 67 2 1090 1189 1068 1404 2390 history2 7 5 6 6 history2 0.5 6.7 19.3 history2



Jul28/22

0ct6/22 -

OIL ANALYSIS REPORT



Sep15/23

Sen26/23

Nov3/23

VISUAL		method	limit/base	current	history1	history2
White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor	scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual	NONE NONE NONE NONE NONE NORML	NONE NONE NONE NONE NONE NORML	NONE NONE NONE NONE NONE NORML	NONE NONE NONE NONE NONE NORML NORML
Emulsified Water Free Water	scalar scalar	*Visual *Visual	>0.2	NEG NEG	NEG NEG	NEG NEG
FLUID PROPE			limit/base	current	history1	history2
Visc @ 100°C GRAPHS Ferrous Alloys	cSt	ASTM D445	15.4	13.9	14.3	14.8
Non-ferrous Metal	s	Nov3/23	Dec6/23			
10- 5-	/					
10	Sap26/23	Nov323	0.00 Base Number (mg KOH(6) Base Number (mg KOH(6)	Base Number		

0.0

Jul28/22 -

0ct6/22 -

Sep15/23 -

Sep26/23

GFL Environmental - 410 - Michigan West



 Unique Number
 : 10782920
 Diagnostician
 : Wes Davis

 Certificate L2367
 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)

Sep15/23.

Nov3/23 -

Sep26/23

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

Received

Diagnosed

Dec6/23 -

: 13 Dec 2023

: 14 Dec 2023

11

Laboratory

Sample No.

Lab Number

Jul28/22

: GFL0104358

: 06033129

0ct6/22 -

Vov3/23 -

39000 Van Born Rd

Contact: Belal Dgheish

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Wayne, MI

US 48184

)ec6/23

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