

OIL ANALYSIS REPORT

Sample Rating Trend



4678M Component Diesel Engine PETRO CANADA DURON SHP 15W40 (--- GAL)

SAMPLE INFORMATION method

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.

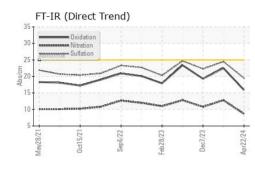
Fluid Condition

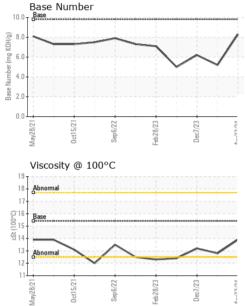
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR		method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0117686	GFL0108781	GFL0105661
Sample Date		Client Info		22 Apr 2024	12 Mar 2024	07 Dec 2023
Machine Age	hrs	Client Info		14762	14142	14142
Oil Age	hrs	Client Info		14142	14142	13219
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
-		and the set	Press to Use a second		Internet	le'stern O
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	>80	9	28	21
Chromium	ppm	ASTM D5185m	>5	<1	1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	2
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	<1	0
Aluminum	ppm	ASTM D5185m	>30	2	3	2
Lead	ppm	ASTM D5185m	>30	0	2	<1
Copper	ppm	ASTM D5185m	>150	1	1	2
Tin	ppm	ASTM D5185m	>5	0	1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current <1	history1 2	history2 0
	ppm ppm					
Boron		ASTM D5185m	0	<1	2	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	<1 0	2 0	0 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 59	2 0 53	0 0 57
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 59 <1	2 0 53 1	0 0 57 <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	<1 0 59 <1 936	2 0 53 1 899	0 0 57 <1 923
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	<1 0 59 <1 936 1040	2 0 53 1 899 1076	0 0 57 <1 923 1036
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	<1 0 59 <1 936 1040 1037	2 0 53 1 899 1076 946	0 0 57 <1 923 1036 846
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	<1 0 59 <1 936 1040 1037 1247	2 0 53 1 899 1076 946 1204	0 0 57 <1 923 1036 846 1202
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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 0 1010 1070 1150 1270 2060	<1 0 59 <1 936 1040 1037 1247 3396	2 0 53 1 899 1076 946 1204 3262	0 0 57 <1 923 1036 846 1202 2829
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 2060	<1 0 59 <1 936 1040 1037 1247 3396 current	2 0 53 1 899 1076 946 1204 3262 history1	0 0 57 <1 923 1036 846 1202 2829 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 method	0 0 60 0 1010 1070 1150 1270 2060 kimit/base >20	<1 0 59 <1 936 1040 1037 1247 3396 current 3	2 0 53 1 899 1076 946 1204 3262 history1 5	0 0 57 <1 923 1036 846 1202 2829 history2 4
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 method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 kimit/base >20	<1 0 59 <1 936 1040 1037 1247 3396 current 3 3 3	2 0 53 1 899 1076 946 1204 3262 history1 5 5	0 0 57 <1 923 1036 846 1202 2829 history2 4 3
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 limit/base >20	<1 0 59 <1 936 1040 1037 1247 3396 current 3 3 0	2 0 53 1 899 1076 946 1204 3262 history1 5 5 5 4	0 0 57 <1 923 1036 846 1202 2829 history2 4 3 <1
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 2060 220 200 200 200 200 200	<1 0 59 <1 936 1040 1037 1247 3396 current 3 3 0 current	2 0 53 1 899 1076 946 1204 3262 history1 5 5 5 4 <i>h</i> istory1	0 0 57 <1 923 1036 846 1202 2829 history2 4 3 <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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >20 20 20	<1 0 59 <1 936 1040 1037 1247 3396 <u>current</u> 3 3 0 <u>current</u> 0.4	2 0 53 1 899 1076 946 1204 3262 history1 5 5 5 4 <i>history1</i> 0.8	0 0 57 <1 923 1036 846 1202 2829 history2 4 3 <1 1 history2 0.8
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 2060 2060 200 200 200 200 200 200	<1 0 59 <1 936 1040 1037 1247 3396 current 3 3 0 current 0.4 8.7	2 0 53 1 899 1076 946 1204 3262 history1 5 5 5 4 history1 0.8 12.8	0 0 57 <1 923 1036 846 1202 2829 history2 4 3 <1 ×1 history2 0.8 10.8
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	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 2060 200 200 200 200 200 200	<1 0 59 <1 936 1040 1037 1247 3396 Current 3 3 0 Current 0.4 8.7 19.5 Current	2 0 53 1 899 1076 946 1204 3262 history1 5 5 5 4 history1 0.8 12.8 24.5 history1	0 0 57 <1 923 1036 846 1202 2829 history2 4 3 <1 history2 0.8 10.8 22.3 history2
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 2060 220 200 220 imit/base >3 >20 >3	<1 0 59 <1 936 1040 1037 1247 3396 <u>current</u> 3 3 0 <u>current</u> 0.4 8.7 19.5	2 0 53 1 899 1076 946 1204 3262 history1 5 5 5 4 history1 0.8 12.8 24.5	0 0 57 <1 923 1036 846 1202 2829 history2 4 3 <1 ×1 history2 0.8 10.8 22.3

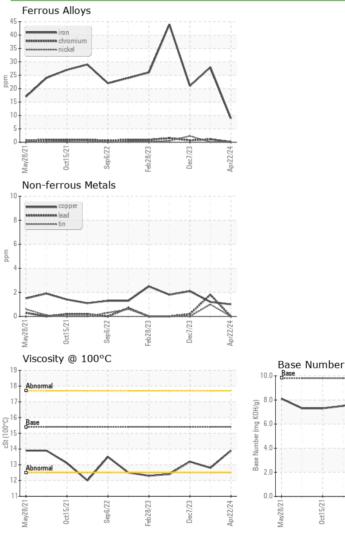


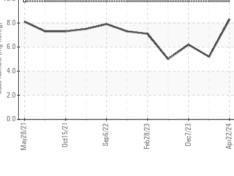
OIL ANALYSIS REPORT





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 PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	12.8	13.2
GRAPHS						





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 415 - Michigan East Sample No. : GFL0117686 6200 Elmridge Received : 24 Apr 2024 Lab Number : 06158807 Tested : 25 Apr 2024 Sterling Heights, MI US 48313 Unique Number : 10994230 Diagnosed : 25 Apr 2024 - Wes Davis Test Package : FLEET Contact: Frank Wolak Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. fwolak@gflenv.com T: (586)825-9514 * - 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) F:

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Submitted By: Frank Wolak

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