

OIL ANALYSIS REPORT

Sample Rating Trend



Component Diesel Engine

Machine Id

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

SAMPLE INFORMATION method

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.

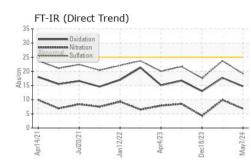
Fluid Condition

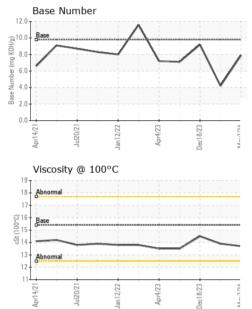
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

		methou	iiiiii/base	current	nistory i	
Sample Number		Client Info		GFL0117628	GFL0108929	GFL0105778
Sample Date		Client Info		07 May 2024	30 Jan 2024	18 Dec 2023
Machine Age	hrs	Client Info		10337	9561	9158
Oil Age	hrs	Client Info		9561	9158	8312
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method		<1.0	<1.0	<1.0
Water		WC Method		<1.0 NEG	<1.0 NEG	<1.0 NEG
		WC Method	>0.2	NEG	NEG	NEG
Glycol				NEG		
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	8	25	2
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	<1	0
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	1	3	2
Lead	ppm	ASTM D5185m	>40	<1	3	0
Copper	ppm	ASTM D5185m	>330	0	2	11
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
			11 1. 1			
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm		limit/base	current	history1 2	history2 12
	ppm ppm		0			
Boron		ASTM D5185m	0	1	2	12
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	1 0	2 <1	12 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	1 0 57	2 <1 59	12 0 58
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	1 0 57 <1	2 <1 59 <1	12 0 58 0
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 57 <1 910	2 <1 59 <1 905	12 0 58 0 877
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 57 <1 910 1057	2 <1 59 <1 905 1025	12 0 58 0 877 972
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 57 <1 910 1057 1023	2 <1 59 <1 905 1025 922	12 0 58 0 877 972 836
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 57 <1 910 1057 1023 1208	2 <1 59 <1 905 1025 922 1216	12 0 58 0 877 972 836 1117
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	1 0 57 <1 910 1057 1023 1208 3262	2 <1 59 <1 905 1025 922 1216 2172	12 0 58 0 877 972 836 1117 2820
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 0 1010 1070 1150 1270 2060	1 0 57 <1 910 1057 1023 1208 3262 current	2 <1 59 <1 905 1025 922 1216 2172 history1	12 0 58 0 877 972 836 1117 2820 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	1 0 57 <1 910 1057 1023 1208 3262 current 3	2 <1 59 <1 905 1025 922 1216 2172 history1 3	12 0 58 0 877 972 836 1117 2820 history2 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm 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 0 1010 1070 1150 1270 2060 kimit/base >25	1 0 57 <1 910 1057 1023 1208 3262 current 3 3 3	2 <1 59 <1 905 1025 922 1216 2172 history1 3 4	12 0 58 0 877 972 836 1117 2820 history2 8 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25	1 0 57 <1 910 1057 1023 1208 3262 current 3 3 3 <1	2 <1 59 <1 905 1025 922 1216 2172 history1 3 4 <1	12 0 58 0 877 972 836 1117 2820 history2 8 0 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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	1 0 57 <1 910 1057 1023 1208 3262 current 3 3 3 <1 current 0.5	2 <1 59 <1 905 1025 922 1216 2172 history1 3 4 <1 5 1.9	12 0 58 0 877 972 836 1117 2820 history2 8 0 1 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 TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	1 0 57 <1 910 1057 1023 1208 3262 current 3 3 3 <1 current	2 <1 59 <1 905 1025 922 1216 2172 history1 3 4 <1 history1	12 0 58 0 877 972 836 1117 2820 history2 8 0 1 history2 0.1
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 225 225 220 220 1imit/base >22 20	1 0 57 <1 910 1057 1023 1208 3262 <i>current</i> 3 3 3 <1 <i>current</i> 0.5 6.8	2 <1 59 <1 905 1025 922 1216 2172 history1 3 4 <1 .1 9.9	12 0 58 0 877 972 836 1117 2820 history2 8 0 1 history2 0.1 4.3
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 D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	1 0 57 <1 910 1057 1023 1208 3262 current 3 3 3 <1 current 0.5 6.8 19.2 current	2 <1 59 <1 905 1025 922 1216 2172 history1 3 4 <1 1.9 9.9 23.7 history1	12 0 58 0 877 972 836 1117 2820 history2 8 0 1 1 history2 0.1 4.3 17.6 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 TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >4 >20	1 0 57 <1 910 1057 1023 1208 3262 <u>current</u> 3 3 <1 <u>current</u> 0.5 6.8 19.2	2 <1 59 <1 905 1025 922 1216 2172 history1 3 4 <1 * history1 1.9 9.9 23.7	12 0 58 0 877 972 836 1117 2820 history2 8 0 1 1 <u>history2</u> 0.1 4.3 17.6



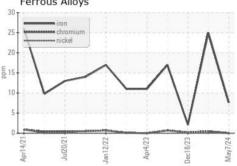
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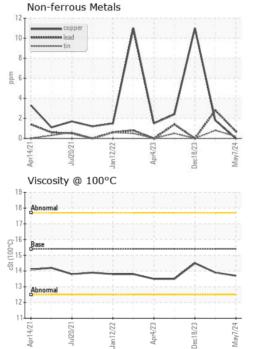


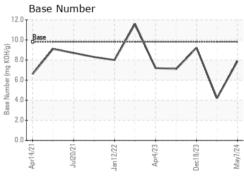


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	13.7	13.9	14.5
GRAPHS						

Ferrous Alloys







Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 415 - Michigan East Sample No. : GFL0117628 6200 Elmridge Received : 10 May 2024 Lab Number : 06175198 Tested : 11 May 2024 Sterling Heights, MI US 48313 Unique Number : 11021251 Diagnosed : 11 May 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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