

OIL ANALYSIS REPORT

SAMPLE INFORMATION method

Sample Rating Trend



Area (BC60229) 228077 Component

Component Diesel Engine

Fluid 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.

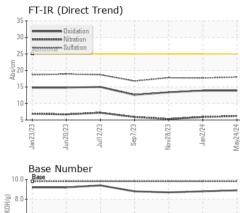
Fluid Condition

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		method	limit/base	current	history 1	history2
Sample Number		Client Info		GFL0116711	GFL0100887	GFL0086809
Sample Date		Client Info		24 May 2024	02 Jan 2024	28 Nov 2023
Machine Age	hrs	Client Info		23670	23670	23670
Oil Age	hrs	Client Info		23670	1200	23670
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT		mathad	limit/bass	ourroat	biotory	biotom/0
CONTAMINAT		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	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	8	6	3
Chromium	ppm	ASTM D5185m	>20	1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	1	0	0
Aluminum	ppm	ASTM D5185m	>20	1	<1	<1
Lead	ppm	ASTM D5185m	>40	1	<1	0
Copper	ppm	ASTM D5185m	>330	2	1	<1
Tin	ppm	ASTM D5185m	>15	<1	1	0
Vanadium	ppm	ASTM D5185m		<1	<1	<1
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base		history1 6	history2 6
	ppm ppm			current 8 1		
Boron Barium		ASTM D5185m	0	8	6	6
Boron	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	8 1	6 0	6 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	8 1 63	6 0 64	6 0 58
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	8 1 63 <1	6 0 64 <1	6 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	8 1 63 <1 951	6 0 64 <1 980	6 0 58 0 881
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 1 63 <1 951 1142	6 0 64 <1 980 1105	6 0 58 0 881 1064
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 1 63 <1 951 1142 1088	6 0 64 <1 980 1105 1075	6 0 58 0 881 1064 968
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 1 63 <1 951 1142 1088 1257	6 0 64 <1 980 1105 1075 1269	6 0 58 0 881 1064 968 1138
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	8 1 63 <1 951 1142 1088 1257 3317	6 0 64 <1 980 1105 1075 1269 3160	6 0 58 0 881 1064 968 1138 2876
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	0 0 60 0 1010 1070 1150 1270 2060	8 1 63 <1 951 1142 1088 1257 3317 current	6 0 64 <1 980 1105 1075 1269 3160 history1	6 0 58 0 881 1064 968 1138 2876 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 0 1010 1070 1150 1270 2060 limit/base >25	8 1 63 <1 951 1142 1088 1257 3317 current 4	6 0 64 <1 980 1105 1075 1269 3160 history1 2	6 0 58 0 881 1064 968 1138 2876 history2 2
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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	8 1 63 <1 951 1142 1088 1257 3317 current 4 2	6 0 64 <1 980 1105 1075 1269 3160 history1 2 4	6 0 58 0 881 1064 968 1138 2876 history2 2 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 >25 >20	8 1 63 <1 951 1142 1088 1257 3317 current 4 2 3	6 0 64 <1 980 1105 1075 1269 3160 history1 2 4 0	6 0 58 0 881 1064 968 1138 2876 history2 2 3 0
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 20	8 1 63 <1 951 1142 1088 1257 3317 current 4 2 3 current	6 0 64 <1 980 1105 1075 1269 3160 history1 2 4 0 0 history1	6 0 58 0 881 1064 968 1138 2876 history2 2 3 0 0
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 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	8 1 63 <1 951 1142 1088 1257 3317 current 4 2 3 current 0.1	6 0 64 <1 980 1105 1075 1269 3160 history1 2 4 0 history1 0.1	6 0 58 0 881 1064 968 1138 2876 history2 2 3 0 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 225 220 220 220 20 20 20 20 20 20 20 20 20	8 1 63 <1 951 1142 1088 1257 3317 current 4 2 3 current 0.1 6.2	6 0 64 <1 980 1105 1075 1269 3160 history1 2 4 0 history1 0.1 5.9	6 0 58 0 881 1064 968 1138 2876 history2 2 3 0 0 history2 0.1 5.3
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 2060 225 20 220 220 20 20 20 20 30 20 30 20 20 20 20 20 20 20 20 20 20 20 20 20	8 1 63 <1 951 1142 1088 1257 3317 current 4 2 3 current 0.1 6.2 18.0 current	6 0 64 <1 980 1105 1075 1269 3160 history1 2 4 0 0 history1 0.1 5.9 17.7 history1	6 0 58 0 881 1064 968 1138 2876 history2 2 3 0 history2 0.1 5.3 17.8 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 225 20 220 220 20 20 20 30 20 30 25 20 20 20 20 20 20 20 20 20 20 20 20 20	8 1 63 <1 951 1142 1088 1257 3317 current 4 2 3 current 0.1 6.2 18.0	6 0 64 <1 980 1105 1075 1269 3160 history1 2 4 0 0 history1 0.1 5.9 17.7	6 0 58 0 881 1064 968 1138 2876 history2 2 3 0 history2 0.1 5.3 17.8

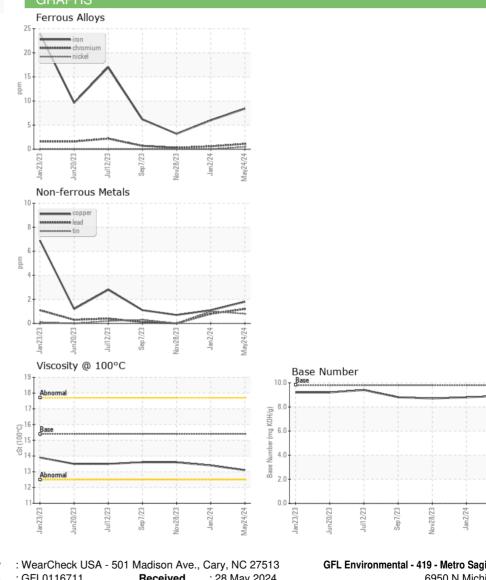


OIL ANALYSIS REPORT



10.0 Base		er				
(망 8.0-						-
8.0 0.8 Base Mrmber (mg KOH/0) 6.0						
4.0 -						
2.0-						
Jan 23/23	Jun20/23	Jul12/23	Sep7/23	Nov28/23	Jan2/24	VC/VCVV
	cosity @ mal	100°C			1	
17- ට ¹⁶ Base						
() 16 () 15 () 15 ² 3 14						
13 - Abno 12 -	rmal					
Jan 23/23	Jun20/23	Jul12/23	Sep7/23 -	Vov28/23	Jan2/24 -	VC/VCV

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	13.1	13.4	13.6
GRAPHS						



Laboratory GFL Environmental - 419 - Metro Saginaw Sample No. : GFL0116711 Received : 28 May 2024 6950 N Michigan Lab Number : 06192061 Tested : 29 May 2024 Saginaw, MI US 48604 Unique Number : 11048813 Diagnosed : 30 May 2024 - Sean Felton Test Package : FLEET Contact: Jeremy Hines Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. jhines@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (800)684-1277 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

May24/24