

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend

...........

### NORMAL

#### Machine Id

## **CUMMINS 810030**

Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (28 QTS)

#### 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.

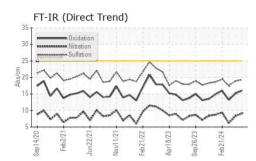
### Fluid Condition

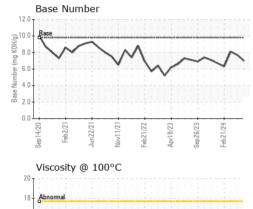
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

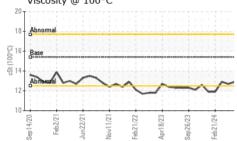
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0116809	GFL0116750	GFL0109025
Sample Date		Client Info		09 May 2024	30 Apr 2024	12 Mar 2024
Machine Age	hrs	Client Info		16616	16547	16235
Oil Age	hrs	Client Info		11284	11215	10903
Oil Changed		Client Info		N/A	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
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	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	13	8	4
Chromium	ppm	ASTM D5185m	>5	<1	0	0
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	3	2	<1
Lead	ppm	ASTM D5185m	>25	0	0	0
Copper	ppm	ASTM D5185m	>100	4	0	0
Tin	ppm	ASTM D5185m	>4	1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base	current 9	history1 9	history2 10
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	9	9	10 0 56
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	9 0	9 0	10 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	9 0 59	9 0 58	10 0 56
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	9 0 59 1	9 0 58 <1	10 0 56 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	9 0 59 1 864	9 0 58 <1 813 1093 956	10 0 56 0 851 1144 963
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	9 0 59 1 864 1118	9 0 58 <1 813 1093 956 1137	10 0 56 0 851 1144 963 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	0 0 60 0 1010 1070 1150	9 0 59 1 864 1118 962	9 0 58 <1 813 1093 956	10 0 56 0 851 1144 963
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	9 0 59 1 864 1118 962 1181	9 0 58 <1 813 1093 956 1137	10 0 56 0 851 1144 963 1189
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	9 0 59 1 864 1118 962 1181 3190	9 0 58 <1 813 1093 956 1137 3120 history1 3	10 0 56 0 851 1144 963 1189 3486 history2 2
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 ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 imit/base	9 0 59 1 864 1118 962 1181 3190 current	9 0 58 <1 813 1093 956 1137 3120 history1	10 0 56 0 851 1144 963 1189 3486 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 <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 <b>limit/base</b>	9 0 59 1 864 1118 962 1181 3190 current 3	9 0 58 <1 813 1093 956 1137 3120 history1 3	10 0 56 0 851 1144 963 1189 3486 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 <b>limit/base</b>	9 0 59 1 864 1118 962 1181 3190 current 3 5	9 0 58 <1 813 1093 956 1137 3120 history1 3 2	10 0 56 0 851 1144 963 1189 3486 history2 2 2 <1
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 0 1010 1070 1150 1270 2060 <b>Jimit/base</b> >25	9 0 59 1 864 1118 962 1181 3190 current 3 5 <	9 0 58 <1 813 1093 956 1137 3120 history1 3 2 1 1 history1 0.4	10 0 56 0 851 1144 963 1189 3486 history2 2 2 <1 0 history2 0.2
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 <b>Imit/base</b> >25 >20	9 0 59 1 864 1118 962 1181 3190 current 3 5 <1 current	9 0 58 <1 813 1093 956 1137 3120 history1 3 2 1 history1	10 0 56 0 851 1144 963 1189 3486 history2 2 <1 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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 1imit/base >20	9 0 59 1 864 1118 962 1181 3190 current 3 5 <1 current 0.5	9 0 58 <1 813 1093 956 1137 3120 history1 3 2 1 1 history1 0.4	10 0 56 0 851 1144 963 1189 3486 history2 2 2 <1 0 history2 0.2
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 t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 >20 <b>imit/base</b> >6 >20	9 0 59 1 864 1118 962 1181 3190 current 3 5 <1 2 1 current 0.5 9.1	9 0 58 <1 813 1093 956 1137 3120 history1 3 2 1 1 history1 0.4 8.3	10 0 56 0 851 1144 963 1189 3486 history2 2 2 <1 0 history2 0.2 6.2
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 t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >6 >20 >20	9 0 59 1 864 1118 962 1181 3190 current 3 5 <1 current 0.5 9.1 19.3	9 0 58 <1 813 1093 956 1137 3120 history1 3 2 1 1 history1 0.4 8.3 18.9	10 0 56 0 851 1144 963 1189 3486 <b>history2</b> 2 <1 0 <b>history2</b> 0.2 6.2 17.5
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	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >20 20 30 20 30 20 30	9 0 59 1 864 1118 962 1181 3190 current 3 5 <1 current 0.5 9.1 19.3 current	9 0 58 <1 813 1093 956 1137 3120 history1 3 2 1 3 2 1 history1 0.4 8.3 18.9 history1	10 0 56 0 851 1144 963 1189 3486 history2 2 <1 0 Vistory2 0.2 6.2 17.5 history2



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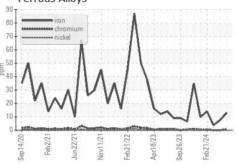


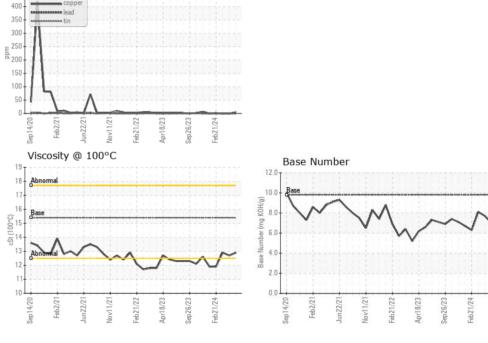
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	12.9	12.7	12.9
GRAPHS						

Ferrous Alloys

Non-ferrous Metals

450





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 009 - Fairburn Sample No. : GFL0116809 Received : 13 May 2024 6905 Roosevelt Hwy Lab Number : 06176738 Tested : 14 May 2024 Fairburn, GA US 30213 Unique Number : 11022791 Diagnosed : 14 May 2024 - Wes Davis Test Package : FLEET Contact: Eric Jones Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. erjones@gflenv.com T: (678)630-9927 \* - 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) E: