

### **OIL ANALYSIS REPORT**

Sample Rating Trend

### NORMAL

Machine Id

## cummins 912085

Front Diesel Engine

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.

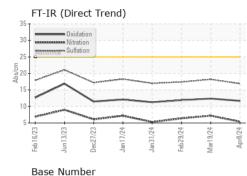
#### Fluid Condition

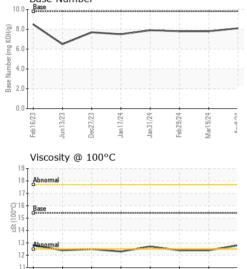
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0116794	GFL0116738	GFL0109046
Sample Date		Client Info		08 Apr 2024	19 Mar 2024	29 Feb 2024
Machine Age	hrs	Client Info		4618	4143	4023
Oil Age	hrs	Client Info		4618	4143	4023
Oil Changed		Client Info		N/A	N/A	N/A
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	>90	6	20	14
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	6	6
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	0	0	<1
Tin	ppm	ASTM D5185m	>15	<1	0	0
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current	history1	history2 12
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	12	11	12
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	12 0	11 0	12 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	12 0 55	11 0 56	12 0 58
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	12 0 55 <1	11 0 56 0	12 0 58 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	12 0 55 <1 797	11 0 56 0 767	12 0 58 0 754
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	12 0 55 <1 797 1025	11 0 56 0 767 1199	12 0 58 0 754 1105
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	12 0 55 <1 797 1025 908	11 0 56 0 767 1199 966	12 0 58 0 754 1105 844
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	12 0 55 <1 797 1025 908 1063	11 0 56 0 767 1199 966 1146	12 0 58 0 754 1105 844 1092
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	12 0 55 <1 797 1025 908 1063 3022	11 0 56 0 767 1199 966 1146 3504	12 0 58 0 754 1105 844 1092 3022
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	0 0 60 1010 1070 1150 1270 2060	12 0 55 <1 797 1025 908 1063 3022 current	11 0 56 0 767 1199 966 1146 3504 history1	12 0 58 0 754 1105 844 1092 3022 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>	0 0 60 1010 1070 1150 1270 2060	12 0 55 <1 797 1025 908 1063 3022 current 2	11 0 56 0 767 1199 966 1146 3504 history1 3	12 0 58 0 754 1105 844 1092 3022 history2 3
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 <b>method</b> ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Limit/base >25	12 0 55 <1 797 1025 908 1063 3022 current 2 <1	11 0 56 0 767 1199 966 1146 3504 history1 3 1	12 0 58 0 754 1105 844 1092 3022 history2 3 3 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 <b>limit/base</b> >25 >20	12 0 55 <1 797 1025 908 1063 3022 current 2 <1 3	11 0 56 0 767 1199 966 1146 3504 <b>history1</b> 3 1 1	12 0 58 0 754 1105 844 1092 3022 history2 3 3 3 3 13
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 225 >25	12 0 55 <1 797 1025 908 1063 3022 current 2 <1 3 2 <1 3	11 0 56 0 767 1199 966 1146 3504 history1 3 1 14 14 history1	12 0 58 0 754 1105 844 1092 3022 history2 3 3 3 13 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	12 0 55 <1 797 1025 908 1063 3022 current 2 <1 3 current 0.3	11 0 56 0 767 1199 966 1146 3504 history1 3 1 14 14 history1 0.8	12 0 58 0 754 1105 844 1092 3022 history2 3 3 3 13 history2 0.6
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 <i>limit/base</i> >25 >20 <i>limit/base</i> >20	12 0 55 <1 797 1025 908 1063 3022 current 2 <1 3 current 0.3 5.4	11 0 56 0 767 1199 966 1146 3504 history1 3 1 14 14 history1 0.8 7.2	12 0 58 0 754 1105 844 1092 3022 history2 3 3 3 13 history2 0.6 6.4
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 <b>limit/base</b> >20 <b>limit/base</b> >20 >20	12 0 55 <1 797 1025 908 1063 3022 <u>current</u> 2 <1 3 <u>current</u> 0.3 5.4 16.9	11 0 56 0 767 1199 966 1146 3504 history1 3 1 14 14 0.8 7.2 18.2	12 0 58 0 754 1105 844 1092 3022 history2 3 3 3 13 history2 0.6 6.4 17.4



# **OIL ANALYSIS REPORT**





Jun13/23

Feb16/23

Jec27/23

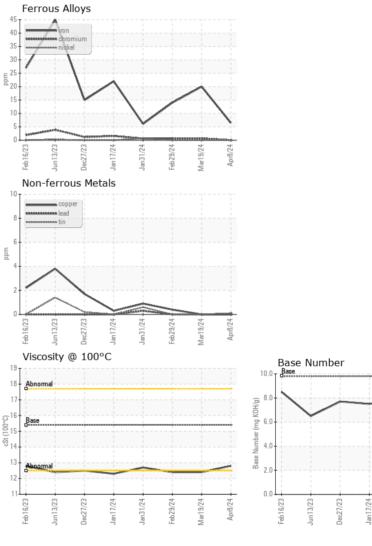
Jan 17/24

lan31/24

eh29/24

Mar19/24

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	12.8	12.4	12.4
GRAPHS						



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 009 - Fairburn Sample No. : GFL0116794 Received : 10 Apr 2024 6905 Roosevelt Hwy Lab Number : 06144932 Tested : 11 Apr 2024 Fairburn, GA US 30213 Unique Number : 10969740 Diagnosed : 11 Apr 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 \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (678)630-9927 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) E:

Report Id: GFL009 [WUSCAR] 06144932 (Generated: 04/11/2024 14:34:49) Rev: 1

Submitted By: Eric Jones

Feb 29/24

Jan 31/24

Mar19/24

Apr8/24

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