

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

cummins 10632

Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (7 GAL)

DIAGNOSIS

Recommendation

We advise that you check for the source of the coolant leak. Check for low coolant level. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

Sodium and/or potassium levels are high.

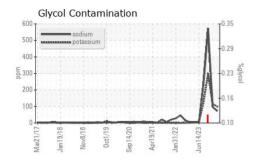
▲ Fluid Condition

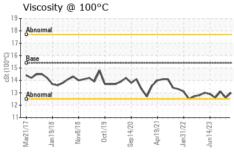
The BN result indicates that there is suitable alkalinity remaining in the oil.

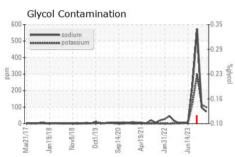
AL)	v2017 Jan2018 Nov2018 Oc22019 Sep20220 Apr2021 Jan2022 Jan2023					
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0109051	GFL0109115	GFL0086211
Sample Date		Client Info		21 Feb 2024	30 Jan 2024	07 Sep 2023
Machine Age	hrs	Client Info		4623	4487	3790
Oil Age	hrs	Client Info		4623	0	3790
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	ABNORMAL	SEVERE
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
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	11	9	17
Chromium	ppm	ASTM D5185m	>5	<1	1	1
Nickel	ppm	ASTM D5185m	>4	<1	<1	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	2	2	3
Lead	ppm	ASTM D5185m	>25	<1	1	2
Copper	ppm	ASTM D5185m	>100	<1	<1	2
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	14	11	16
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	14 0	11 0	16 0
Barium	ppm	ASTM D5185m	0	0	0	0
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	0	0 66	0 62	0 121
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0	0 66 <1	0 62 <1	0 121 <1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010	0 66 <1 742	0 62 <1 680	0 121 <1 802
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	0 66 <1 742 1038	0 62 <1 680 991	0 121 <1 802 1108
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150	0 66 <1 742 1038 912	0 62 <1 680 991 870	0 121 <1 802 1108 939
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 60 0 1010 1070 1150 1270	0 66 <1 742 1038 912 1081	0 62 <1 680 991 870 1027	0 121 <1 802 1108 939 1139
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 ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	0 66 <1 742 1038 912 1081 2726	0 62 <1 680 991 870 1027 2488	0 121 <1 802 1108 939 1139 3446
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 60 0 1010 1070 1150 1270 2060	0 66 <1 742 1038 912 1081 2726	0 62 <1 680 991 870 1027 2488 history1	0 121 <1 802 1108 939 1139 3446 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	0 66 <1 742 1038 912 1081 2726 current	0 62 <1 680 991 870 1027 2488 history1	0 121 <1 802 1108 939 1139 3446 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25	0 66 <1 742 1038 912 1081 2726 current 4 ▲ 73	0 62 <1 680 991 870 1027 2488 history1 4	0 121 <1 802 1108 939 1139 3446 history2 7
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25	0 66 <1 742 1038 912 1081 2726 current 4 ↑ 73 ♠ 99	0 62 <1 680 991 870 1027 2488 history1 4 △ 96 △ 115	0 121 <1 802 1108 939 1139 3446 history2 7 ▲ 574 ▲ 297
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	0 66 <1 742 1038 912 1081 2726 current 4 ▲ 73 ▲ 99 NEG	0 62 <1 680 991 870 1027 2488 history1 4 △ 96 △ 115 NEG	0 121 <1 802 1108 939 1139 3446 history2 7 ▲ 574 ▲ 297 ● 0.12
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m *ASTM D2982	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	0 66 <1 742 1038 912 1081 2726 current 4 ▲ 73 ▲ 99 NEG	0 62 <1 680 991 870 1027 2488 history1 4 ▲ 96 ▲ 115 NEG	0 121 <1 802 1108 939 1139 3446 history2 7 ▲ 574 ▲ 297 ● 0.12 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm	ASTM D5185m *ASTM D2982	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	0 66 <1 742 1038 912 1081 2726 current 4 ▲ 73 ▲ 99 NEG current 0.3	0 62 <1 680 991 870 1027 2488 history1 4 ▲ 96 ▲ 115 NEG history1 0.3	0 121 <1 802 1108 939 1139 3446 history2 7 ▲ 574
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm	ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D2982 *ASTM D7844 *ASTM D7624 *ASTM D76145	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20	0 66 <1 742 1038 912 1081 2726 current 4 ▲ 73 ▲ 99 NEG current 0.3 6.8	0 62 <1 680 991 870 1027 2488 history1 4 ▲ 96 ▲ 115 NEG history1 0.3 6.5	0 121 <1 802 1108 939 1139 3446 history2 7 ▲ 574 ▲ 297 ● 0.12 history2 0.3 7.6
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D2982 *ASTM D7844 *ASTM D7624 *ASTM D76145	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	0 66 <1 742 1038 912 1081 2726 current 4 ▲ 73 ▲ 99 NEG current 0.3 6.8 18.2	0 62 <1 680 991 870 1027 2488 history1 4 ▲ 96 ▲ 115 NEG history1 0.3 6.5 17.6	0 121 <1 802 1108 939 1139 3446 history2 7 ▲ 574 ▲ 297 ● 0.12 history2 0.3 7.6 17.5
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m Method ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7615 method	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30 limit/base	0 66 <1 742 1038 912 1081 2726 current 4 ▲ 73 ▲ 99 NEG current 0.3 6.8 18.2	0 62 <1 680 991 870 1027 2488 history1 4 ▲ 96 ▲ 115 NEG history1 0.3 6.5 17.6 history1	0 121 <1 802 1108 939 1139 3446 history2 7 ▲ 574 ▲ 297 ● 0.12 history2 0.3 7.6 17.5 history2



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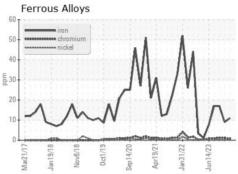


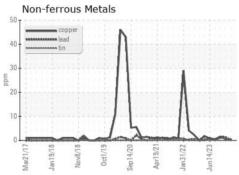


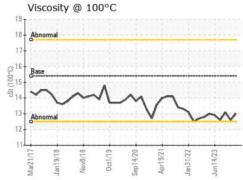
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

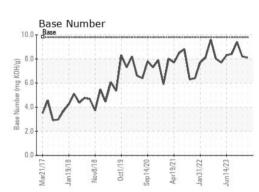
FLUID PROPE	ERITES	method	ilmit/base	current	nistory i	nistoryz
Visc @ 100°C	cSt	ASTM D445	15.4	13.0	12.6	13.1

GRAPHS













Laboratory Sample No. Lab Number : 06098141 Unique Number : 10896371

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

: GFL0109051

Tested

Received : 23 Feb 2024 Diagnosed

: 27 Feb 2024 : 27 Feb 2024 - Jonathan Hester

GFL Environmental - 009 - Fairburn 6905 Roosevelt Hwy Fairburn, GA

US 30213 Contact: Eric Jones erjones@gflenv.com T: (678)630-9927

To discuss this sample report, contact Customer Service at 1-800-237-1369. * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Test Package: FLEET (Additional Tests: Glycol)

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)