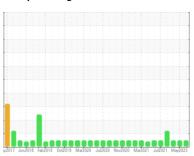


# **OIL ANALYSIS REPORT**

#### Sample Rating Trend







# CUMMINS 10804

Component

**Diesel Engine** 

**DIESEL ENGINE OIL SAE 40 (8 GAL)** 

### DIAGNOSIS

#### Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

#### Wear

All component wear rates are normal.

#### Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

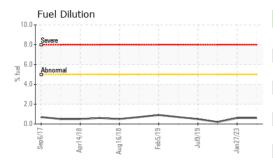
## **Fluid Condition**

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

g2017 Jun2018 Feb2019 - 0c22019 - Mar2020 Jun2020 - Nov2020 - Mar2021 - Jun2021 - Mar2023								
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2		
Sample Number		Client Info		GFL0086218	GFL0057605	GFL0057599		
Sample Date		Client Info		12 Sep 2023	03 May 2023	09 Mar 2023		
Machine Age	hrs	Client Info		14854	14854	14854		
Oil Age	hrs	Client Info		15764	15585	1111		
Oil Changed		Client Info		N/A	N/A	N/A		
Sample Status				NORMAL	NORMAL	NORMAL		
CONTAMINAT	ION	method	limit/base	current	history1	history2		
Glycol		WC Method		NEG	NEG	NEG		
WEAR METAL	S	method	limit/base	current	history1	history2		
Iron	ppm	ASTM D5185m	>100	7	24	15		
Chromium	ppm	ASTM D5185m	>20	<1	3	2		
Nickel	ppm	ASTM D5185m	>4	0	0	0		
Titanium	ppm	ASTM D5185m		<1	0	<1		
Silver	ppm	ASTM D5185m	>3	0	0	0		
Aluminum	ppm	ASTM D5185m	>20	7	15	13		
Lead	ppm	ASTM D5185m	>40	0	0	0		
Copper	ppm	ASTM D5185m	>330	<1	1	2		
Tin	ppm	ASTM D5185m	>15	<1	0	<1		
Vanadium	ppm	ASTM D5185m		0	0	0		
Cadmium	ppm	ASTM D5185m		0	0	0		
ADDITIVES		method				history2		
-				Janone	Thistory	111010172		
Boron	ppm	ASTM D5185m	250	19	16	16		
	ppm							
Boron		ASTM D5185m	250	19	16	16		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	19 0	16 0	16 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	19 0 62	16 0 64	16 0 63		
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	19 0 62 <1	16 0 64 <1	16 0 63 <1		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	19 0 62 <1 803 1129 951	16 0 64 <1 791 1068 982	16 0 63 <1 815 1078 945		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	19 0 62 <1 803 1129	16 0 64 <1 791 1068	16 0 63 <1 815 1078		
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	250 10 100 450 3000 1150 1350	19 0 62 <1 803 1129 951	16 0 64 <1 791 1068 982	16 0 63 <1 815 1078 945		
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 ASTM D5185m	250 10 100 450 3000 1150 1350	19 0 62 <1 803 1129 951 1119	16 0 64 <1 791 1068 982 1154	16 0 63 <1 815 1078 945 1168		
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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250	19 0 62 <1 803 1129 951 1119 3376	16 0 64 <1 791 1068 982 1154 2745	16 0 63 <1 815 1078 945 1168 3444		
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	250 10 100 450 3000 1150 1350 4250	19 0 62 <1 803 1129 951 1119 3376 current	16 0 64 <1 791 1068 982 1154 2745	16 0 63 <1 815 1078 945 1168 3444 history2		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25	19 0 62 <1 803 1129 951 1119 3376 current	16 0 64 <1 791 1068 982 1154 2745 history1 4 0 3	16 0 63 <1 815 1078 945 1168 3444 history2 6 2		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216	19 0 62 <1 803 1129 951 1119 3376 current 3	16 0 64 <1 791 1068 982 1154 2745 history1 4	16 0 63 <1 815 1078 945 1168 3444 history2 6 2		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20	19 0 62 <1 803 1129 951 1119 3376  current 3 2 <1	16 0 64 <1 791 1068 982 1154 2745 history1 4 0 3	16 0 63 <1 815 1078 945 1168 3444 history2 6 2		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 >5	19 0 62 <1 803 1129 951 1119 3376 current 3 2 <1 0.6	16 0 64 <1 791 1068 982 1154 2745 history1 4 0 3 <1.0	16 0 63 <1 815 1078 945 1168 3444 history2 6 2 2 <1.0		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 >5 limit/base >3	19 0 62 <1 803 1129 951 1119 3376  current 3 2 <1 0.6  current	16 0 64 <1 791 1068 982 1154 2745 history1 4 0 3 <1.0	16 0 63 <1 815 1078 945 1168 3444 history2 6 2 <1.0 history2		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm	ASTM D5185m ASTM D7844	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 >5 limit/base >3	19 0 62 <1 803 1129 951 1119 3376 current 3 2 <1 0.6 current 0.4	16 0 64 <1 791 1068 982 1154 2745 history1 4 0 3 <1.0 history1 0.2	16 0 63 <1 815 1078 945 1168 3444 history2 6 2 2 <1.0 history2 0.3		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7624	250 10 100 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 >5 limit/base >3 >20	19 0 62 <1 803 1129 951 1119 3376  current 3 2 <1 0.6  current 0.4 6.5	16 0 64 <1 791 1068 982 1154 2745 history1 4 0 3 <1.0 history1 0.2 6.9	16 0 63 <1 815 1078 945 1168 3444 history2 6 2 <1.0 history2 0.3 7.1		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7624	250 10 100 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 >5 limit/base >3 >20 >30	19 0 62 <1 803 1129 951 1119 3376  current 3 2 <1 0.6  current 0.4 6.5 16.5	16 0 64 <1 791 1068 982 1154 2745 history1 4 0 3 <1.0 history1 0.2 6.9 16.5	16 0 63 <1 815 1078 945 1168 3444 history2 6 2 <1.0 history2 0.3 7.1 18.3		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7415 method	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 >5 limit/base >3 >20 >30 limit/base >25	19 0 62 <1 803 1129 951 1119 3376 current 3 2 <1 0.6 current 0.4 6.5 16.5 current	16 0 64 <1 791 1068 982 1154 2745 history1 4 0 3 <1.0 history1 0.2 6.9 16.5 history1	16 0 63 <1 815 1078 945 1168 3444 history2 6 2 <1.0 history2 0.3 7.1 18.3 history2		



## **OIL ANALYSIS REPORT**



VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	LIGHT
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
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method				history2

12.3

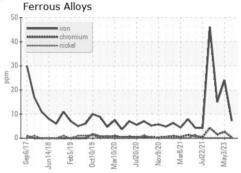
12.6

12.6

12.0 - Abnor	mal								
12.0 Abnor 10.0 Base 8.0 Abnor 4.0 2.0					_^_		_	<u>a</u>	
6.0 Abnor	mal	1	/	~			~		~
4.0 -	~		15455				Hadai	Y	ntob:
0.0				7		1			1
Sep6/17	Jun14/18	Feb5/19	0ct10/19	Mar10/20	0	Nov9/20	Mar8/21-	-	

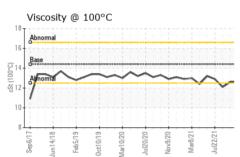
GRAPHS	
Familia William	

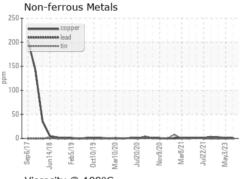
Visc @ 100°C

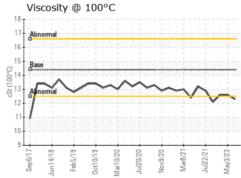


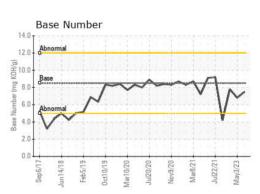
cSt

ASTM D445 14.4













Laboratory Sample No. Lab Number Unique Number : 10648028

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 05952069

: GFL0086218

Received : 14 Sep 2023 Diagnosed : 19 Sep 2023 Diagnostician : Wes Davis

**Test Package**: FLEET (Additional Tests: FuelDilution, PercentFuel) 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.

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

GFL Environmental - 009 - Fairburn

6905 Roosevelt Hwy Fairburn, GA US 30213 Contact: Eric Jones

erjones@gflenv.com T: (678)630-9927