

# **OIL ANALYSIS REPORT**

Sample Rating Trend



NORMAL



Machine Id **812039** 

Component **Diesel Engine** 

**DIESEL ENGINE OIL SAE 40 (--- 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

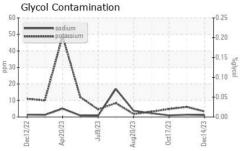
## **Fluid Condition**

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

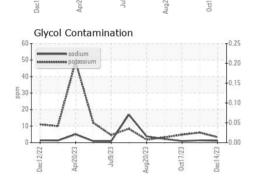
		Dec2022	Apr2023 Jul2023	Aug2023 Oct2023	Dec2023	
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0086411	GFL0086402	GFL0086388
Sample Date		Client Info		14 Dec 2023	19 Nov 2023	17 Oct 2023
Machine Age	hrs	Client Info		4151	3993	3874
Oil Age	hrs	Client Info		0	0	0
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	>5	<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	>110	3	8	6
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	2	4	3
Lead	ppm	ASTM D5185m	>45	0	<1	<1
Copper	ppm	ASTM D5185m	>85	0	<1	1
Tin	ppm	ASTM D5185m	>4	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	<1	<1
Cadmium	ppm	ASTM D5185m		<1	0	<1
ADDITIVES		mothod	limit/base	current	history1	history2
ADDITIVES		method			Thistory i	
Boron	ppm	ASTM D5185m	250	17	2	12
	ppm					
Boron		ASTM D5185m	250	17	2	12
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	17 0	2	12 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	17 0 56	2 0 64	12 0 65
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	17 0 56 0	2 0 64 <1	12 0 65 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	17 0 56 0 838	2 0 64 <1 945	12 0 65 <1 932
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	17 0 56 0 838 1140	2 0 64 <1 945 1195	12 0 65 <1 932 1169
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	17 0 56 0 838 1140 1067	2 0 64 <1 945 1195 1101	12 0 65 <1 932 1169 1048
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	17 0 56 0 838 1140 1067	2 0 64 <1 945 1195 1101 1336	12 0 65 <1 932 1169 1048
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 limit/base	17 0 56 0 838 1140 1067 1248 3288	2 0 64 <1 945 1195 1101 1336 3300	12 0 65 <1 932 1169 1048 1286 3178
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >30	17 0 56 0 838 1140 1067 1248 3288	2 0 64 <1 945 1195 1101 1336 3300 history1	12 0 65 <1 932 1169 1048 1286 3178
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >30	17 0 56 0 838 1140 1067 1248 3288 current	2 0 64 <1 945 1195 1101 1336 3300 history1	12 0 65 <1 932 1169 1048 1286 3178 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >30 >216	17 0 56 0 838 1140 1067 1248 3288 current 3	2 0 64 <1 945 1195 1101 1336 3300 history1 5	12 0 65 <1 932 1169 1048 1286 3178 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >30 >216	17 0 56 0 838 1140 1067 1248 3288 current 3 1	2 0 64 <1 945 1195 1101 1336 3300 history1 5 1	12 0 65 <1 932 1169 1048 1286 3178 history2 4 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol	ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >30 >216 >20	17 0 56 0 838 1140 1067 1248 3288 current 3 1 3 NEG	2 0 64 <1 945 1195 1101 1336 3300 history1 5 1 6 NEG	12 0 65 <1 932 1169 1048 1286 3178 history2 4 1 5 NEG
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm	ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D2982	250 10 100 450 3000 1150 1350 4250 limit/base >30 >216 >20	17 0 56 0 838 1140 1067 1248 3288 current 3 1 3 NEG	2 0 64 <1 945 1195 1101 1336 3300 history1 5 1 6 NEG	12 0 65 <1 932 1169 1048 1286 3178 history2 4 1 5 NEG
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm	ASTM D5185m *ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >30 >216 >20	17 0 56 0 838 1140 1067 1248 3288 current 3 1 3 NEG current	2 0 64 <1 945 1195 1101 1336 3300 history1 5 1 6 NEG history1	12 0 65 <1 932 1169 1048 1286 3178 history2 4 1 5 NEG history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624	250 10 100 450 3000 1150 1350 4250 limit/base >30 >216 >20 limit/base	17 0 56 0 838 1140 1067 1248 3288 current 3 1 3 NEG current 0.2 5.8	2 0 64 <1 945 1195 1101 1336 3300 history1 5 1 6 NEG history1 0.3 8.2	12 0 65 <1 932 1169 1048 1286 3178 history2 4 1 5 NEG history2 0.2 7.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m *ASTM D5185m **ASTM D5185m **ASTM D5185m **ASTM D5185m **ASTM D5185m **ASTM D5185m **ASTM D7844 **ASTM D7844 **ASTM D7624 **ASTM D7415 **Method	250 10 100 450 3000 1150 1350 4250 limit/base >30 >216 >20 limit/base >3 >20 >30 limit/base	17 0 56 0 838 1140 1067 1248 3288 current 3 1 3 NEG current 0.2 5.8 17.9 current	2 0 64 <1 945 1195 1101 1336 3300 history1 5 1 6 NEG history1 0.3 8.2 19.1 history1	12 0 65 <1 932 1169 1048 1286 3178 history2 4 1 5 NEG history2 0.2 7.2 18.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624	250 10 100 450 3000 1150 1350 4250 limit/base >30 >216 >20 limit/base >3 >20 >30 limit/base >25	17 0 56 0 838 1140 1067 1248 3288 current 3 1 3 NEG current 0.2 5.8 17.9	2 0 64 <1 945 1195 1101 1336 3300 history1 5 1 6 NEG history1 0.3 8.2 19.1	12 0 65 <1 932 1169 1048 1286 3178 history2 4 1 5 NEG history2 0.2 7.2 18.5



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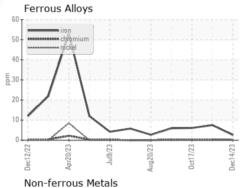
Viscosi	ty @ 1	100°C	;		
Abnormal			 		
Rase					
Abnorma				_	_
2	$\bigvee$				
0 +			+		

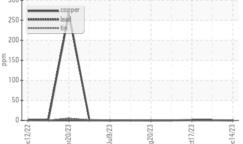


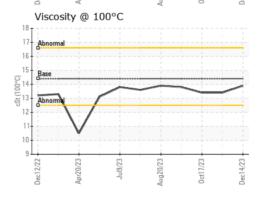
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

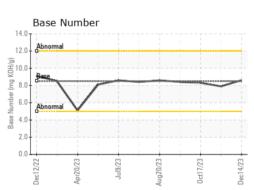
FLUID PROPE	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	14.4	13.9	13.4	13.4

## **GRAPHS**













Laboratory Sample No. Lab Number Unique Number : 10791849

: GFL0086411 : 06036620

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 15 Dec 2023 Diagnosed

: 22 Dec 2023 Diagnostician : Jonathan Hester

Test Package : FLEET ( Additional Tests: Glycol ) 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.

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Contact: Mike Howell mike.howell@gflenv.com

T: F:

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