

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend



Machine Id

## **914031** Component **Diesel Engine** Fluid **DIESEL ENGINE OIL SAE 40 (--- GAL)**

# DIAGNOSIS

### Recommendation

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

There is no indication of any contamination in the oil.

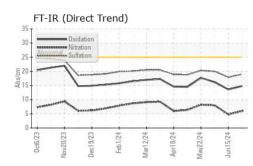
#### Fluid Condition

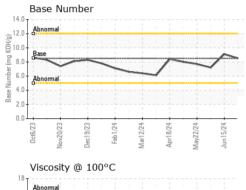
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

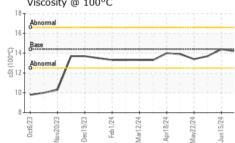
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0128569	GFL0123005	GFL0123022
Sample Date		Client Info		09 Jul 2024	15 Jun 2024	11 Jun 2024
Machine Age	hrs	Client Info		2074	1921	1889
Oil Age	hrs	Client Info		153	176	144
Oil Changed		Client Info		Changed	Changed	Changed
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
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	6	3	17
Chromium	ppm	ASTM D5185m	>20	0	0	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	5
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	<1	0	<1
Aluminum	ppm	ASTM D5185m	>20	1	<1	2
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	8	7	71
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 0	history1 6	history2 10
	ppm ppm					
Boron		ASTM D5185m	250	0	6	10
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	0 0	6 0	10 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	0 0 59	6 0 59	10 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	0 0 59 <1	6 0 59 <1	10 0 63 1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	0 0 59 <1 938	6 0 59 <1 1026	10 0 63 1 933
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	0 0 59 <1 938 1032	6 0 59 <1 1026 1099	10 0 63 1 933 1111
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	250 10 100 450 3000 1150	0 0 59 <1 938 1032 1074	6 0 59 <1 1026 1099 1054	10 0 63 1 933 1111 1019
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	250 10 100 450 3000 1150 1350	0 0 59 <1 938 1032 1074 1247	6 0 59 <1 1026 1099 1054 1316	10 0 63 1 933 1111 1019 1239
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	250 10 100 450 3000 1150 1350 4250	0 0 59 <1 938 1032 1074 1247 3574	6 0 59 <1 1026 1099 1054 1316 3763	10 0 63 1 933 1111 1019 1239 3013
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	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25	0 0 59 <1 938 1032 1074 1247 3574 current	6 0 59 <1 1026 1099 1054 1316 3763 history1	10 0 63 1 933 1111 1019 1239 3013 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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25	0 0 59 <1 938 1032 1074 1247 3574 <i>current</i> 4	6 0 59 <1 1026 1099 1054 1316 3763 history1 3	10 0 63 1 933 1111 1019 1239 3013 history2 5
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	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216	0 0 59 <1 938 1032 1074 1247 3574 <i>current</i> 4 2	6 0 59 <1 1026 1099 1054 1316 3763 history1 3 2	10 0 63 1 933 1111 1019 1239 3013 history2 5 5 5
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	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216 >20	0 0 59 <1 938 1032 1074 1247 3574 current 4 2 2 <1	6 0 59 <1 1026 1099 1054 1316 3763 history1 3 2 <1	10 0 63 1 933 1111 1019 1239 3013 history2 5 5 5 3
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	250 10 100 450 3000 1150 1350 4250 <b>Imit/base</b> >25 >216 >20 <b>Imit/base</b>	0 0 59 <1 938 1032 1074 1247 3574 <i>current</i> 4 2 <1 <i>current</i>	6 0 59 <1 1026 1099 1054 1316 3763 history1 3 2 <1 +istory1	10 0 63 1 933 1111 1019 1239 3013 <b>history2</b> 5 5 5 3 3
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	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216 >20 <b>limit/base</b> >3	0 0 59 <1 938 1032 1074 1247 3574 <i>current</i> 4 2 <1 2 <1 <i>current</i>	6 0 59 <1 1026 1099 1054 1316 3763 history1 3 2 <1 4 history1 0.1	10 0 63 1 933 1111 1019 1239 3013 history2 5 5 5 3 3 <b>history2</b> 0.4
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>i</b> mit/base >25 >216 >20 <b>i</b> mit/base >3 >3	0 0 59 <1 938 1032 1074 1247 3574 <i>current</i> 4 2 <1 <i>current</i> 0.2 6.0	6 0 59 <1 1026 1099 1054 1316 3763 history1 3 2 <1 2 <1 history1 0.1 4.8	10 0 63 1 933 1111 1019 1239 3013 history2 5 5 5 3 3 history2 0.4 8.0
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	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 20 216 >216 >20 >20 >3 >20 >30 Simit/base	0 0 59 <1 938 1032 1074 1247 3574 <i>current</i> 4 2 <1 2 <1 <i>current</i> 0.2 6.0 19.0	6 0 59 <1 1026 1099 1054 1316 3763 history1 3 2 <1 3 2 <1 history1 0.1 4.8 17.9	10 0 63 1 933 1111 1019 1239 3013 <b>history2</b> 5 5 5 3 3 <b>history2</b> 0.4 8.0 20.0
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 *ASTM D7844	250 10 100 450 3000 1150 1350 4250 20 216 >216 >20 20 30 30 20 30 20 30 20 30 25	0 0 59 <1 938 1032 1074 1247 3574 <i>current</i> 4 2 <1 <i>current</i> 0.2 6.0 19.0	6 0 59 <1 1026 1099 1054 1316 3763 history1 3 2 <1 3 2 <1 0.1 4.8 17.9 history1	10 0 63 1 933 1111 1019 1239 3013 history2 5 5 5 3 3 history2 0.4 8.0 20.0 history2



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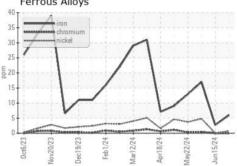


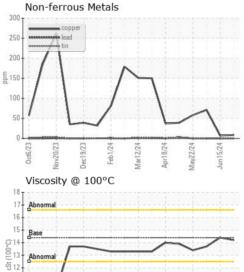


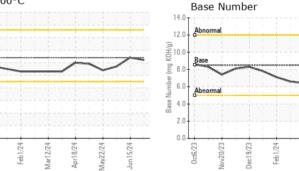


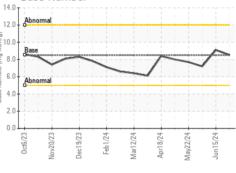
VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	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	14.4	14.2	14.4	13.7
GRAPHS						

Ferrous Alloys









Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 814 - Little Rock Hauling Sample No. : GFL0128569 Received : 15 Jul 2024 4005 Hwy 161 N. Lab Number : 06237252 Tested : 17 Jul 2024 LIttle Rock, AR Unique Number : 11126086 Diagnosed : 17 Jul 2024 - Wes Davis US 72117 Test Package : FLEET Contact: Michael Lovin Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. mlovin@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

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Submitted By: Nicole Walls Page 2 of 2