



# OIL ANALYSIS REPORT

Sample Rating Trend



DIRT



Machine Id  
**414096**  
 Component  
**Diesel Engine**  
 Fluid  
 {not provided} (--- GAL)

## DIAGNOSIS

### Recommendation

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend that you drain the oil from the component if this has not already been done. We recommend you service the filters on this component. We recommend an early resample to monitor this condition. Please specify the brand, type, and viscosity of the oil on your next sample.

### Wear

Nickel ppm levels are abnormal. Exhaust valve wear is indicated. We have assumed that this component is not breaking in (age of component not reported).

### Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is a moderate concentration of dirt present in the oil. Tests indicate that there is no fuel present in the oil. High amount of ingressed dirt has caused abrasive wear to the component.

### Fluid Condition

Viscosity of sample indicates oil is within SAE 30 range, advise investigate. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>GFL0113213</b>	---	---
Sample Date	Client Info	<b>03 Jun 2024</b>	---	---
Machine Age	hrs Client Info	<b>0</b>	---	---
Oil Age	hrs Client Info	<b>538</b>	---	---
Oil Changed	Client Info	<b>N/A</b>	---	---
Sample Status		<b>ABNORMAL</b>	---	---

## CONTAMINATION

method	limit/base	current	history1	history2
Water	WC Method >0.2	<b>NEG</b>	---	---
Glycol	WC Method	<b>NEG</b>	---	---

## WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185(m) >120	<b>40</b>	---	---
Chromium	ppm ASTM D5185(m) >20	<b>&lt;1</b>	---	---
Nickel	ppm ASTM D5185(m) >5	<b>▲ 7</b>	---	---
Titanium	ppm ASTM D5185(m) >2	<b>&lt;1</b>	---	---
Silver	ppm ASTM D5185(m) >2	<b>&lt;1</b>	---	---
Aluminum	ppm ASTM D5185(m) >20	<b>9</b>	---	---
Lead	ppm ASTM D5185(m) >40	<b>6</b>	---	---
Copper	ppm ASTM D5185(m) >330	<b>209</b>	---	---
Tin	ppm ASTM D5185(m) >15	<b>4</b>	---	---
Antimony	ppm ASTM D5185(m)	<b>0</b>	---	---
Vanadium	ppm ASTM D5185(m)	<b>0</b>	---	---
Beryllium	ppm ASTM D5185(m)	<b>0</b>	---	---
Cadmium	ppm ASTM D5185(m)	<b>0</b>	---	---

## ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185(m)	<b>255</b>	---	---
Barium	ppm ASTM D5185(m)	<b>&lt;1</b>	---	---
Molybdenum	ppm ASTM D5185(m)	<b>131</b>	---	---
Manganese	ppm ASTM D5185(m)	<b>4</b>	---	---
Magnesium	ppm ASTM D5185(m)	<b>683</b>	---	---
Calcium	ppm ASTM D5185(m)	<b>1434</b>	---	---
Phosphorus	ppm ASTM D5185(m)	<b>659</b>	---	---
Zinc	ppm ASTM D5185(m)	<b>752</b>	---	---
Sulfur	ppm ASTM D5185(m)	<b>1843</b>	---	---
Lithium	ppm ASTM D5185(m)	<b>&lt;1</b>	---	---

## CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185(m) >25	<b>▲ 57</b>	---	---
Sodium	ppm ASTM D5185(m)	<b>3</b>	---	---
Potassium	ppm ASTM D5185(m) >20	<b>21</b>	---	---
Fuel	% ASTM D7593* >3.0	<b>0.0</b>	---	---

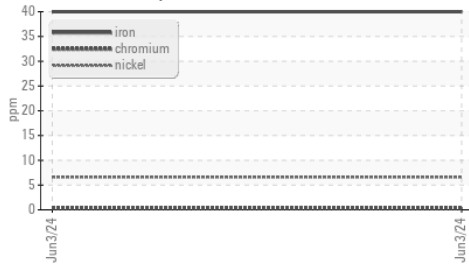
## INFRA-RED

method	limit/base	current	history1	history2
Soot %	% ASTM D7844* >4	<b>0.2</b>	---	---
Nitration	Abs/cm ASTM D7624* >20	<b>9.6</b>	---	---
Sulfation	Abs/.1mm ASTM D7415* >30	<b>25.4</b>	---	---

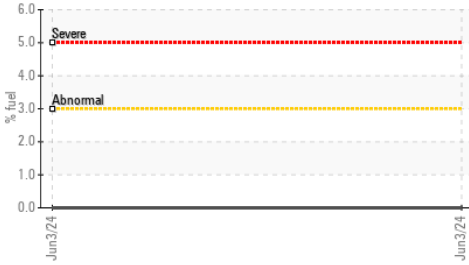


# OIL ANALYSIS REPORT

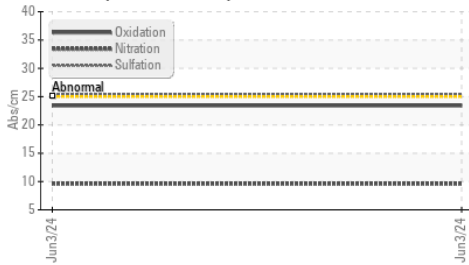
## ▲ Ferrous Alloys



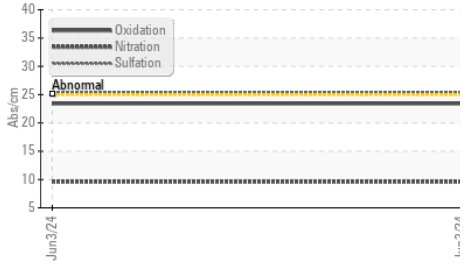
## Fuel Dilution



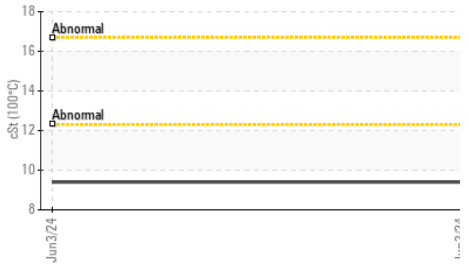
## FT-IR (Direct Trend)



## FT-IR (Direct Trend)



## Viscosity @ 100°C



## FLUID DEGRADATION

method	limit/base	current	history1	history2	
Oxidation	Abs./1mm ASTM D7414*	>25	23.4	---	---

## VISUAL

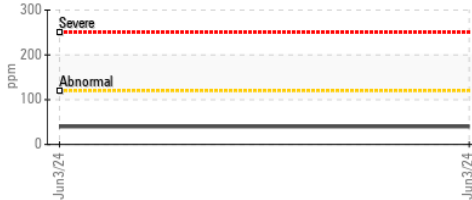
method	limit/base	current	history1	history2	
White Metal	scalar Visual*	NONE	VLITE	---	---
Yellow Metal	scalar Visual*	NONE	NONE	---	---
Precipitate	scalar Visual*	NONE	NONE	---	---
Silt	scalar Visual*	NONE	VLITE	---	---
Debris	scalar Visual*	NONE	NONE	---	---
Sand/Dirt	scalar Visual*	NONE	NONE	---	---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

## FLUID PROPERTIES

method	limit/base	current	history1	history2
Visc @ 100°C	cSt ASTM D7279(m)	9.4	---	---

## GRAPHS

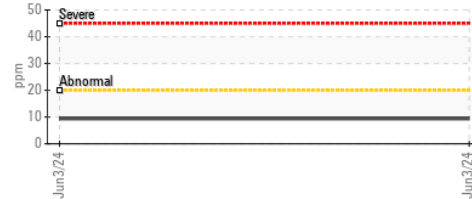
### Iron (ppm)



### Lead (ppm)



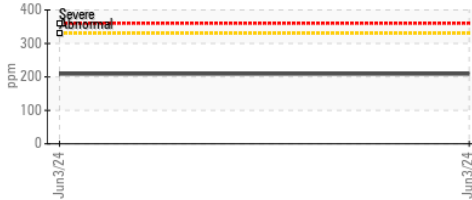
### Aluminum (ppm)



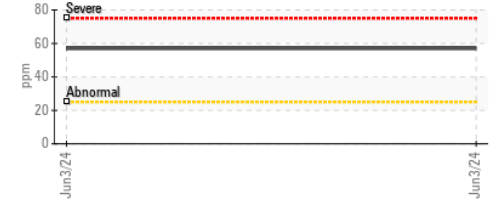
### Chromium (ppm)



### Copper (ppm)



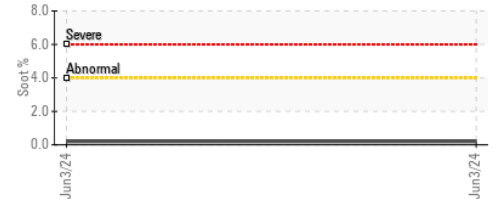
### ▲ Silicon (ppm)



### Viscosity @ 100°C



### Soot %



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : GFL0113213  
**Lab Number** : 02639797  
**Unique Number** : 5788959  
**Test Package** : MOB 1 ( Additional Tests: FuelDilution, PercentFuel, Visual )

**GFL Environmental - 246 - Windsor**  
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 F:

To discuss this sample report, contact Customer Service at 1-800-268-2131.  
 Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.  
 Validity of results and interpretation are based on the sample and information as supplied.