



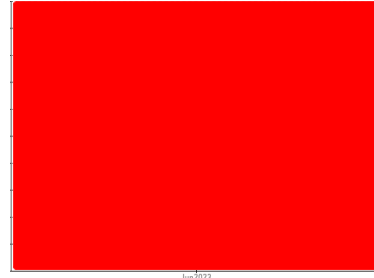
# PROBLEM SUMMARY

Sample Rating Trend

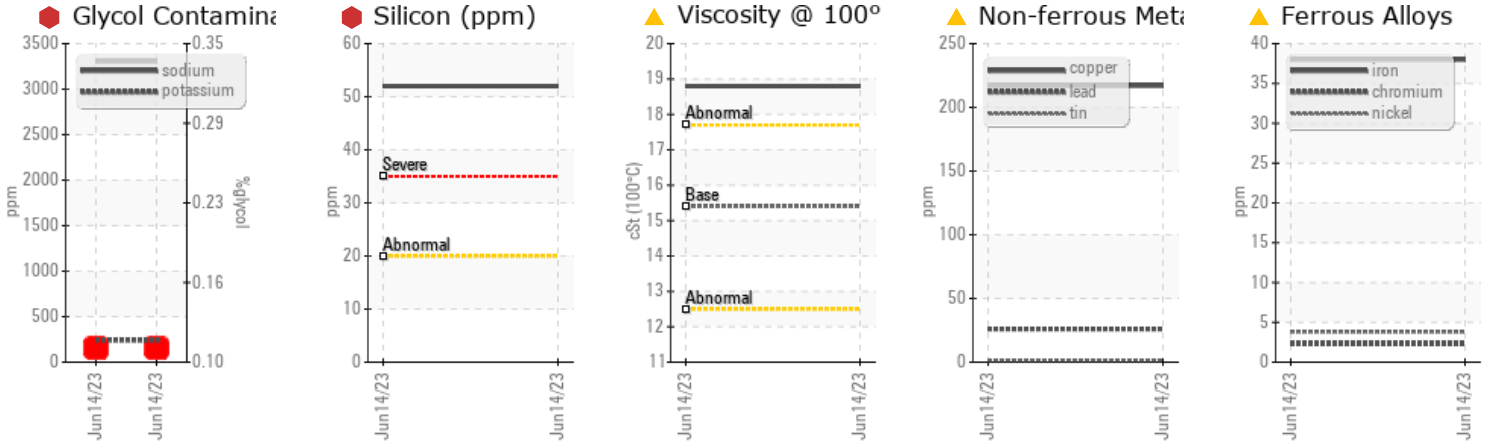
GLYCOL



Area  
**GFL411**  
Machine Id  
**FREIGHTLINER 722036**  
Component  
**Diesel Engine**  
Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**



## COMPONENT CONDITION SUMMARY



## RECOMMENDATION

We advise that you check for the source of the coolant leak. Check for low coolant level. We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

## PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	---	---
Nickel	ppm	ASTM D5185m	>2	▲ 4	---	---
Copper	ppm	ASTM D5185m	>150	▲ 217	---	---
Silicon	ppm	ASTM D5185m	>20	● 52	---	---
Sodium	ppm	ASTM D5185m		▲ 3306	---	---
Potassium	ppm	ASTM D5185m	>20	▲ 242	---	---
Glycol	%	*ASTM D2982		● 0.12	---	---
Visc @ 100°C	cSt	ASTM D445	15.4	▲ 18.8	---	---

Customer Id: GFLSOLD  
Sample No.: GFL0076883  
Lab Number: 05878677  
Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data:  
Jonathan Hester +1 919-379-4092 x4092  
[jhester@wearcheckusa.com](mailto:jhester@wearcheckusa.com)

To change component or sample information:  
Customer Service +1 1-800-237-1369  
[customerservice@wearcheck.com](mailto:customerservice@wearcheck.com)

## RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	---	---	?	Oil and filter change at the time of sampling has been noted.
Change Filter	---	---	?	Oil and filter change at the time of sampling has been noted.
Resample	MISSED	Jul 07 2023	?	We recommend an early resample to monitor this condition.
Check Dirt Access	MISSED	Jul 07 2023	?	We advise that you check the air filter, air induction system, and any areas where dirt may enter the component.
Check Glycol Access	MISSED	Jul 07 2023	?	We advise that you check for the source of the coolant leak.

## HISTORICAL DIAGNOSIS



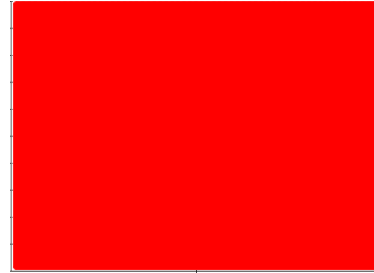
# OIL ANALYSIS REPORT

Sample Rating Trend

GLYCOL



Area  
**GFL411**  
Machine Id  
**FREIGHTLINER 722036**  
Component  
**Diesel Engine**  
Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**



## DIAGNOSIS

### Recommendation

We advise that you check for the source of the coolant leak. Check for low coolant level. We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

### Wear

The copper level is abnormal. Valve wear is indicated. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core).

### Contamination

Sodium and/or potassium levels are high. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

## SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>GFL0076883</b>	---	---
Sample Date	Client Info		<b>14 Jun 2023</b>	---	---
Machine Age	mls	Client Info	<b>408018</b>	---	---
Oil Age	mls	Client Info	<b>11386</b>	---	---
Oil Changed	Client Info		<b>Changed</b>	---	---
Sample Status			<b>SEVERE</b>	---	---

## CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<b>&lt;1.0</b>	---	---
Water	WC Method	>0.2	<b>NEG</b>	---	---

## WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >80	<b>38</b>	---	---
Chromium	ppm	ASTM D5185m >5	<b>2</b>	---	---
Nickel	ppm	ASTM D5185m >2	<b>4</b>	---	---
Titanium	ppm	ASTM D5185m	<b>0</b>	---	---
Silver	ppm	ASTM D5185m >3	<b>0</b>	---	---
Aluminum	ppm	ASTM D5185m >30	<b>7</b>	---	---
Lead	ppm	ASTM D5185m >30	<b>26</b>	---	---
Copper	ppm	ASTM D5185m >150	<b>217</b>	---	---
Tin	ppm	ASTM D5185m >5	<b>2</b>	---	---
Vanadium	ppm	ASTM D5185m	<b>0</b>	---	---
Cadmium	ppm	ASTM D5185m	<b>0</b>	---	---

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 0	<b>137</b>	---	---
Barium	ppm	ASTM D5185m 0	<b>0</b>	---	---
Molybdenum	ppm	ASTM D5185m 60	<b>346</b>	---	---
Manganese	ppm	ASTM D5185m 0	<b>3</b>	---	---
Magnesium	ppm	ASTM D5185m 1010	<b>726</b>	---	---
Calcium	ppm	ASTM D5185m 1070	<b>1257</b>	---	---
Phosphorus	ppm	ASTM D5185m 1150	<b>1104</b>	---	---
Zinc	ppm	ASTM D5185m 1270	<b>1315</b>	---	---
Sulfur	ppm	ASTM D5185m 2060	<b>4087</b>	---	---

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >20	<b>52</b>	---	---
Sodium	ppm	ASTM D5185m	<b>3306</b>	---	---
Potassium	ppm	ASTM D5185m >20	<b>242</b>	---	---
Glycol	%	*ASTM D2982	<b>0.12</b>	---	---

## INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	<b>0.2</b>	---	---
Nitration	Abs/cm	*ASTM D7624 >20	<b>17.0</b>	---	---
Sulfation	Abs/.1mm	*ASTM D7415 >30	<b>25.5</b>	---	---

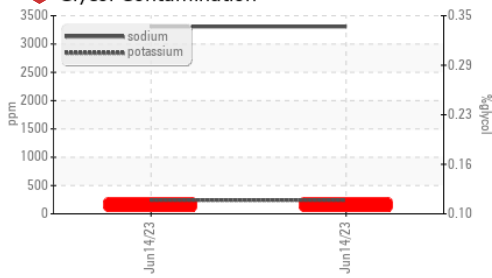
## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	<b>16.4</b>	---	---
Base Number (BN)	mg KOH/g	ASTM D2896 9.8	<b>21.0</b>	---	---



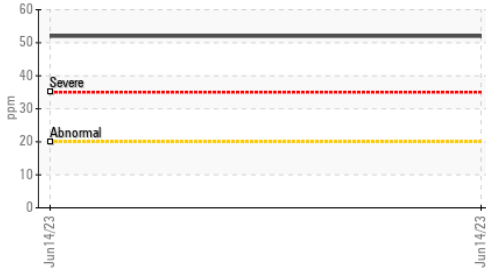
# OIL ANALYSIS REPORT

## Glycol Contamination



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

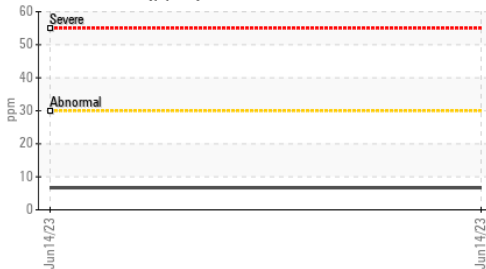
## Silicon (ppm)



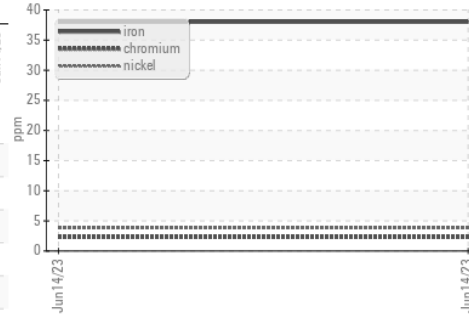
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	▲ 18.8	---

## GRAPHS

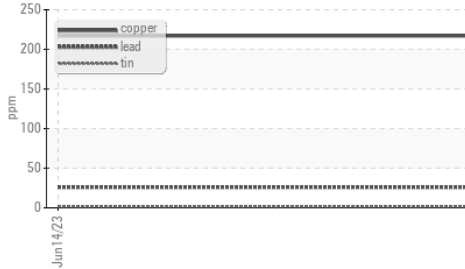
## Aluminum (ppm)



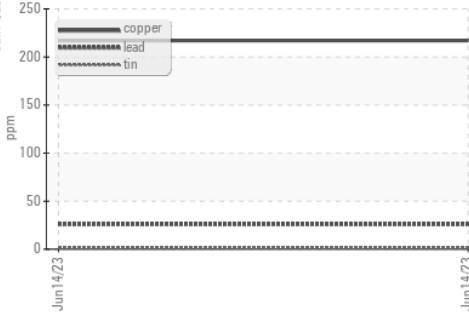
## Ferrous Alloys



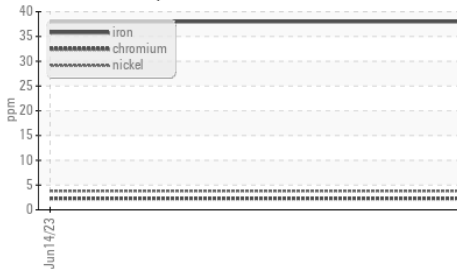
## Non-ferrous Metals



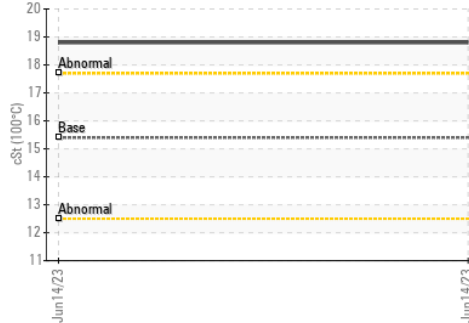
## Non-ferrous Metals



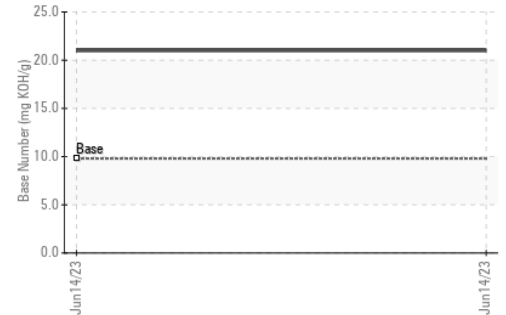
## Ferrous Alloys



## Viscosity @ 100°C



## Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0076883 **Received** : 20 Jun 2023  
**Lab Number** : 05878677 **Diagnosed** : 27 Jun 2023  
**Unique Number** : 10523780 **Diagnostician** : Jonathan Hester  
**Test Package** : FLEET ( Additional Tests: Glycol )

**GFL Environmental - SOLD**  
 3301 BENSON DR., SUITE 601  
 RALEIGH, NC  
 US 27609  
 Contact: Service Manager

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)

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