



# PROBLEM SUMMARY

Sample Rating Trend

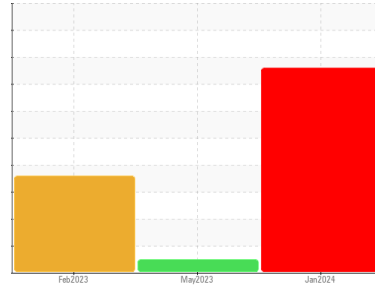
DIRT



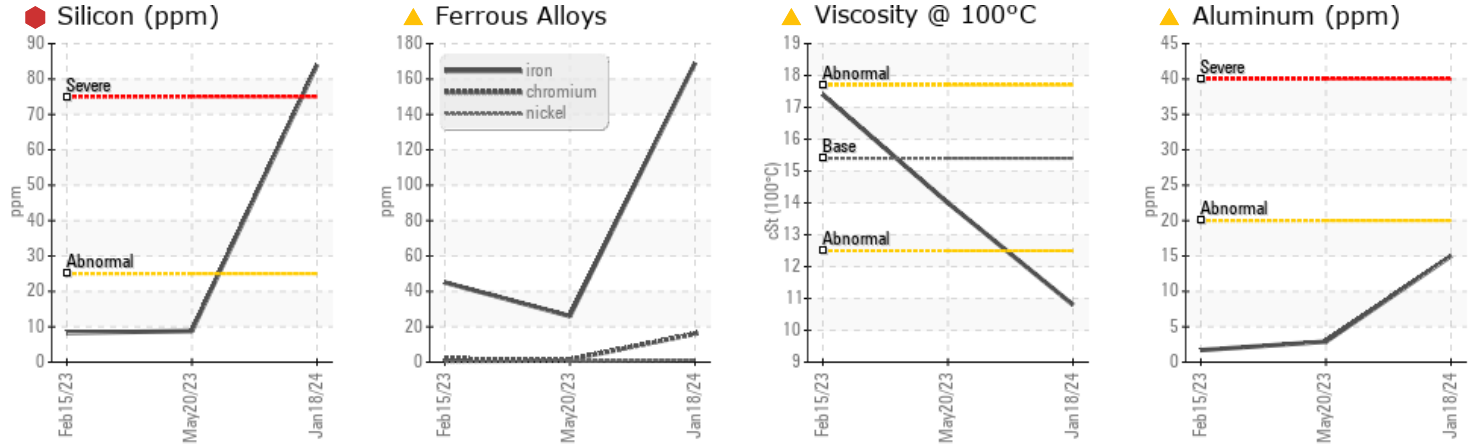
Machine Id  
**426138 - SW4614**

Component  
**Diesel Engine**

Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**



## COMPONENT CONDITION SUMMARY



## 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 and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition. ( Customer Sample Comment: Engine )

## PROBLEMATIC TEST RESULTS

Sample Status			SEVERE	NORMAL	SEVERE
Iron	ppm	ASTM D5185m >100	▲ 169	26	45
Chromium	ppm	ASTM D5185m >20	▲ 16	1	2
Silicon	ppm	ASTM D5185m >25	● 84	9	8

Customer Id: GFL983  
 Sample No.: GFL0105519  
 Lab Number: 06069382  
 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	---	---	?	We recommend that you drain the oil and perform a filter service on this component if not already done.
Change Filter	---	---	?	We recommend that you drain the oil and perform a filter service on this component if not already done.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Dirt Access	---	---	?	We advise that you check the air filter, air induction system, and any areas where dirt may enter the component.

## HISTORICAL DIAGNOSIS

20 May 2023 Diag: Sean Felton

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

view report



15 Feb 2023 Diag: Don Baldrige

SOOT



We advise that you check for faulty combustion, plugged air filters, or aftercoolers. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value. All component wear rates are normal. There is an abnormal amount of solids and carbon present in the oil. The oil viscosity is higher than normal. The BN level is low. The oil is no longer serviceable due to the presence of contaminants.

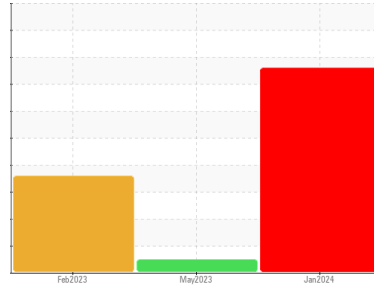
view report





# OIL ANALYSIS REPORT

Sample Rating Trend



**DIRT**



Machine Id  
**426138 - SW4614**

Component  
**Diesel Engine**

Fluid  
**PETRO CANADA DURON SHP 15W40 (--- 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 and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition. ( Customer Sample Comment: Engine )

### Wear

Piston, ring and cylinder wear is indicated.

### Contamination

Fuel content negligible. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

### Fluid Condition

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type. 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>GFL0105519</b>	GFL0075343	GFL0065801
Sample Date	Client Info	<b>18 Jan 2024</b>	20 May 2023	15 Feb 2023
Machine Age	mls	<b>277220</b>	271072	263966
Oil Age	mls	<b>277220</b>	263966	0
Oil Changed	Client Info	<b>N/A</b>	Changed	N/A
Sample Status		<b>SEVERE</b>	NORMAL	SEVERE

## CONTAMINATION

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

## WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >100	<b>▲ 169</b>	26	45
Chromium	ppm ASTM D5185m >20	<b>▲ 16</b>	1	2
Nickel	ppm ASTM D5185m >4	<b>1</b>	<1	<1
Titanium	ppm ASTM D5185m	<b>2</b>	<1	0
Silver	ppm ASTM D5185m >3	<b>0</b>	0	0
Aluminum	ppm ASTM D5185m >20	<b>▲ 15</b>	3	2
Lead	ppm ASTM D5185m >40	<b>3</b>	2	1
Copper	ppm ASTM D5185m >330	<b>11</b>	1	2
Tin	ppm ASTM D5185m >15	<b>&lt;1</b>	<1	<1
Vanadium	ppm ASTM D5185m	<b>0</b>	<1	0
Cadmium	ppm ASTM D5185m	<b>0</b>	<1	0

## ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	<b>58</b>	<1	1
Barium	ppm ASTM D5185m 0	<b>14</b>	0	0
Molybdenum	ppm ASTM D5185m 60	<b>50</b>	40	63
Manganese	ppm ASTM D5185m 0	<b>6</b>	<1	<1
Magnesium	ppm ASTM D5185m 1010	<b>450</b>	128	917
Calcium	ppm ASTM D5185m 1070	<b>1730</b>	2844	1244
Phosphorus	ppm ASTM D5185m 1150	<b>1044</b>	1078	1007
Zinc	ppm ASTM D5185m 1270	<b>1283</b>	1359	1268
Sulfur	ppm ASTM D5185m 2060	<b>3335</b>	3719	3516

## CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >25	<b>● 84</b>	9	8
Sodium	ppm ASTM D5185m	<b>0</b>	<1	3
Potassium	ppm ASTM D5185m >20	<b>6</b>	4	0
Fuel	% ASTM D3524 >5	<b>0.6</b>	<1.0	<1.0

## INFRA-RED

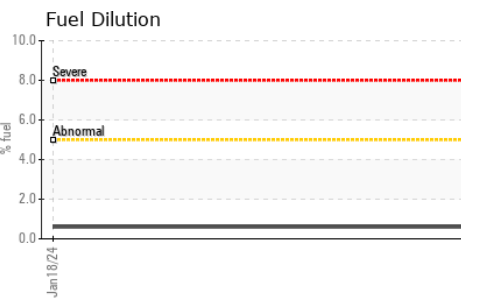
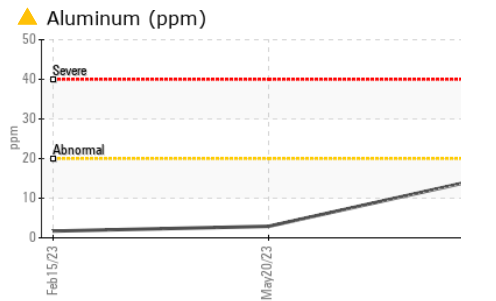
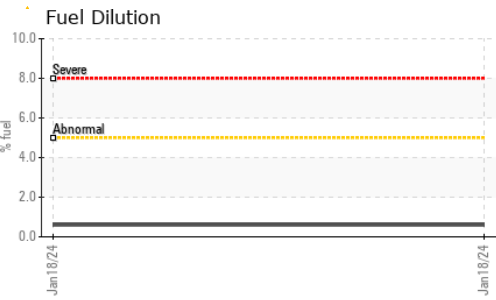
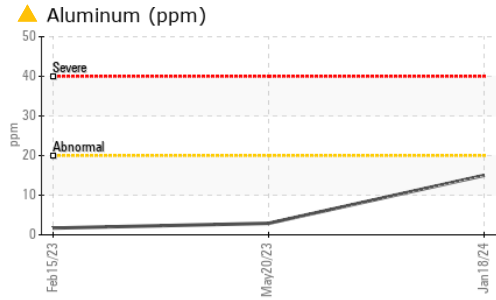
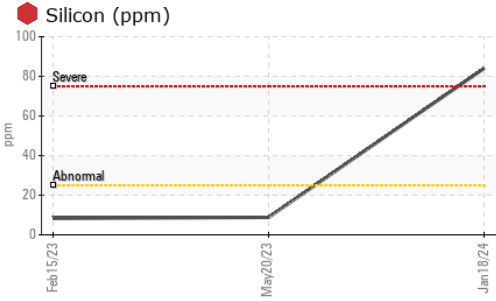
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >3	<b>0.7</b>	1.2	● 5.8
Nitration	Abs/cm *ASTM D7624 >20	<b>7.7</b>	11.8	21.0
Sulfation	Abs/.1mm *ASTM D7415 >30	<b>24.6</b>	22.7	38.3

## FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	<b>21.1</b>	13.3	26.8
Base Number (BN)	mg KOH/g ASTM D2896 9.8	<b>11.1</b>	8.5	▲ 0.0



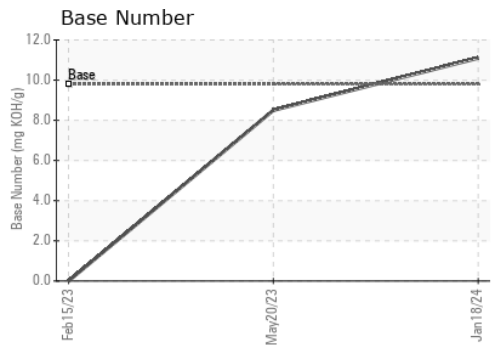
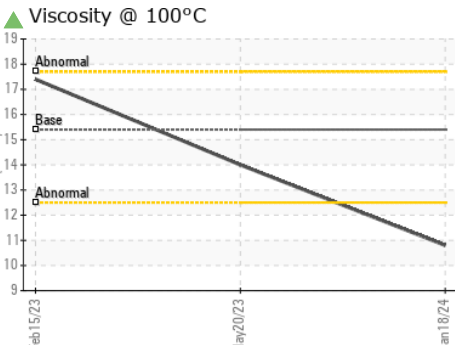
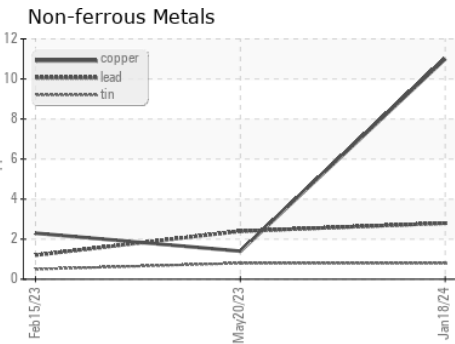
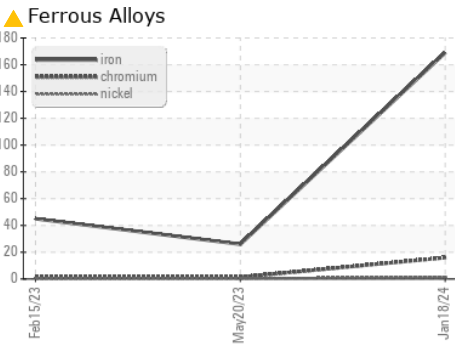
# OIL ANALYSIS REPORT



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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	▲ 10.8	14.0

## GRAPHS



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0105519 **Received** : 24 Jan 2024  
**Lab Number** : 06069382 **Diagnosed** : 26 Jan 2024  
**Unique Number** : 10846059 **Diagnostician** : Jonathan Hester  
**Test Package** : FLEET ( Additional Tests: FuelDilution, PercentFuel )

**GFL Environmental - 983 - Sugar Land Hauling**  
 16011 West Belfort Street  
 Sugar Land, TX  
 US 77498  
 Contact: Adrian Martinez  
 adrianmartinez@gflenv.com

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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F: