



# OIL ANALYSIS REPORT

Sample Rating Trend

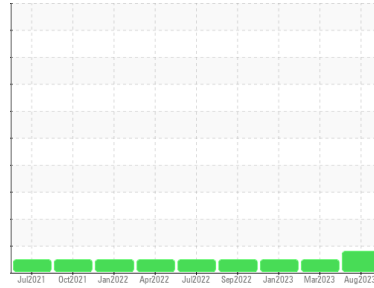
**WEAR**



Machine Id  
**401132**

Component  
**Diesel Engine**

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



## DIAGNOSIS

### Recommendation

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

### Wear

Aluminum ppm levels are abnormal. Piston wear is indicated.

### Contamination

There is no indication of any contamination in the oil.

### Fluid Condition

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>GFL0084153</b>	GFL0073161	GFL0063585
Sample Date	Client Info	<b>23 Aug 2023</b>	15 Mar 2023	25 Jan 2023
Machine Age	hrs	<b>7881</b>	2672	7338
Oil Age	hrs	<b>1200</b>	600	600
Oil Changed	Client Info	<b>N/A</b>	N/A	N/A
Sample Status		<b>ABNORMAL</b>	NORMAL	NORMAL

## CONTAMINATION

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

## WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184*	<b>0</b>	---	---
Iron	ppm ASTM D5185(m) >100	<b>49</b>	16	21
Chromium	ppm ASTM D5185(m) >20	<b>5</b>	<1	<1
Nickel	ppm ASTM D5185(m) >4	<b>&lt;1</b>	<1	<1
Titanium	ppm ASTM D5185(m)	<b>&lt;1</b>	<1	<1
Silver	ppm ASTM D5185(m) >3	<b>0</b>	0	0
Aluminum	ppm ASTM D5185(m) >20	<b>▲ 27</b>	1	2
Lead	ppm ASTM D5185(m) >40	<b>4</b>	0	0
Copper	ppm ASTM D5185(m) >330	<b>13</b>	<1	<1
Tin	ppm ASTM D5185(m) >15	<b>2</b>	<1	0
Antimony	ppm ASTM D5185(m)	<b>0</b>	<1	0
Vanadium	ppm ASTM D5185(m)	<b>0</b>	0	0
Beryllium	ppm ASTM D5185(m)	<b>0</b>	0	0
Cadmium	ppm ASTM D5185(m)	<b>0</b>	0	0

## ADDITIVES

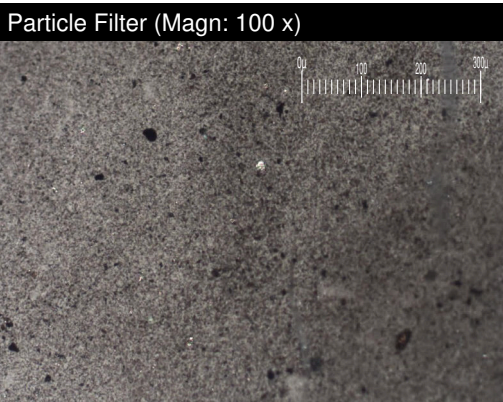
method	limit/base	current	history1	history2
Boron	ppm ASTM D5185(m) 0	<b>5</b>	5	2
Barium	ppm ASTM D5185(m) 0	<b>0</b>	0	0
Molybdenum	ppm ASTM D5185(m) 60	<b>61</b>	62	64
Manganese	ppm ASTM D5185(m) 0	<b>1</b>	<1	<1
Magnesium	ppm ASTM D5185(m) 1010	<b>1020</b>	1018	1055
Calcium	ppm ASTM D5185(m) 1070	<b>1083</b>	1163	1189
Phosphorus	ppm ASTM D5185(m) 1150	<b>1033</b>	1095	1123
Zinc	ppm ASTM D5185(m) 1270	<b>1233</b>	1252	1317
Sulfur	ppm ASTM D5185(m) 2060	<b>2272</b>	2587	2613
Lithium	ppm ASTM D5185(m)	<b>&lt;1</b>	<1	<1

## CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185(m) >25	<b>15</b>	3	3
Sodium	ppm ASTM D5185(m)	<b>2</b>	2	2
Potassium	ppm ASTM D5185(m) >20	<b>&lt;1</b>	0	0

## INFRA-RED

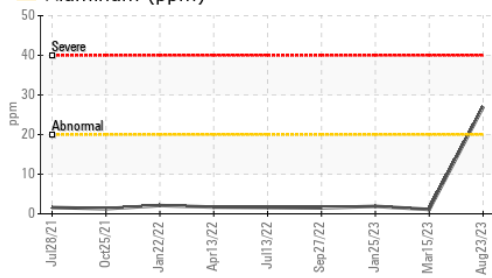
method	limit/base	current	history1	history2
Soot %	% ASTM D7844* >3	<b>0</b>	0	0
Nitration	Abs/cm ASTM D7624* >20	<b>7.5</b>	5.4	5.2
Sulfation	Abs./1mm ASTM D7415* >30	<b>21.7</b>	18.4	16.0



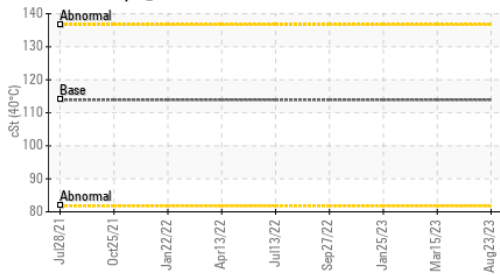


# OIL ANALYSIS REPORT

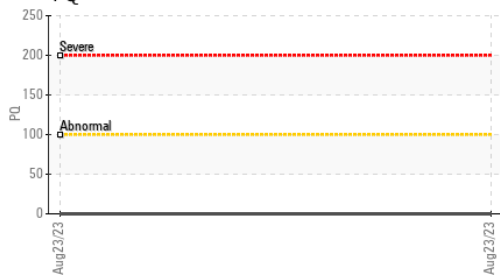
## ▲ Aluminum (ppm)



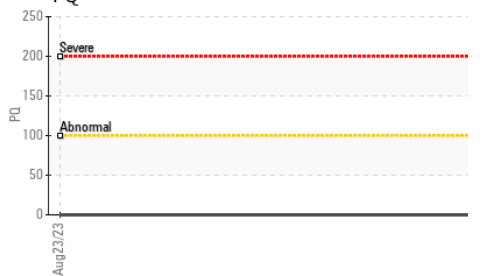
## Viscosity @ 40°C



## PQ



## PQ



## FLUID DEGRADATION

method	limit/base	current	history1	history2	
Oxidation	Abs./1mm ASTM D7414*	>25	16.8	10.6	9.5

## VISUAL

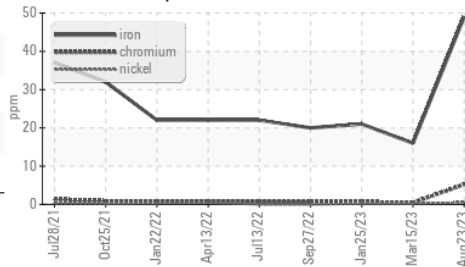
method	limit/base	current	history1	history2
White Metal	scalar Visual*	NONE	VLITE	---
Yellow Metal	scalar Visual*	NONE	NONE	---
Precipitate	scalar Visual*	NONE	NONE	---
Silt	scalar Visual*	NONE	NONE	---
Debris	scalar Visual*	NONE	NONE	---
Sand/Dirt	scalar Visual*	NONE	NONE	---
Appearance	scalar Visual*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

## FLUID PROPERTIES

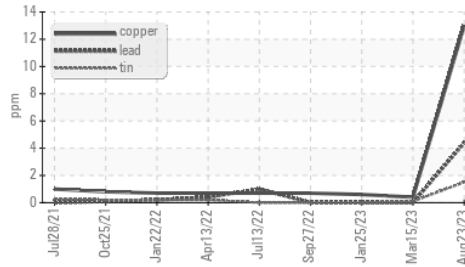
method	limit/base	current	history1	history2
Visc @ 40°C	cSt ASTM D7279(m)	113.9	104	---
Visc @ 100°C	cSt ASTM D7279(m)	15.4	14.3	14.5
Viscosity Index (VI)	Scale ASTM D2270*	142	140	---

## GRAPHS

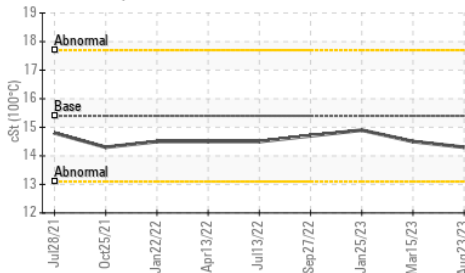
### Ferrous Alloys



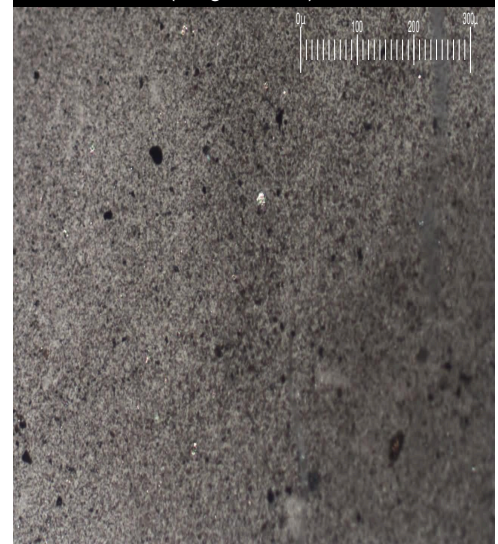
### Non-ferrous Metals



### Viscosity @ 100°C



Particle Filter (Magn: 100 x)



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 573 - Vancouver Hauling  
**Sample No.** : GFL0084153 **Received** : 08 Sep 2023 70 Golden Drive,  
**Lab Number** : 02581092 **Diagnosed** : 11 Sep 2023 Coquitlam, BC  
**Unique Number** : 5642157 **Diagnostician** : Kevin Marson CA V3K 6B5  
**Test Package** : MOB 1 ( Additional Tests: Bottom, BottomAnalysis, FilterPatch, KV40, PQ, PrtCount, PrtFilterCount)  
 Contact: Catia Klagenberg Alves  
 cklagenbergalves@gflenv.com

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.

T:  
F: