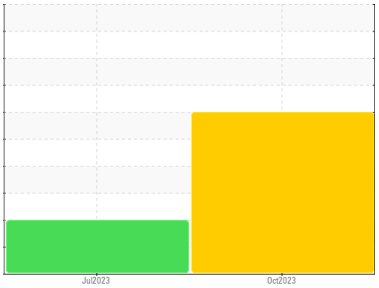
OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Area
222
Machine Id
413137
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (36 LTR)

DIAGNOSIS

Recommendation

We advise that you monitor for an abnormal oil pressure drop and noise. 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. Please specify the component make and model with your next sample.

Wear

Copper ppm levels are severe. Bearing wear is indicated.

Contamination

Fuel content negligible. 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 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		**GFL0094466**	GFL0086794	---
Sample Date		Client Info		**05 Oct 2023**	25 Jul 2023	---
Machine Age	hrs	Client Info		**0**	0	---
Oil Age	hrs	Client Info		**0**	0	---
Oil Changed		Client Info		**N/A**	N/A	---
Sample Status				**SEVERE**	ABNORMAL	---

CONTAMINATION		method	limit/base	current	history1	history2
Glycol		WC Method		**NEG**	NEG	---

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>100	**23**	19	---
Chromium	ppm	ASTM D5185(m)	>20	**<1**	0	---
Nickel	ppm	ASTM D5185(m)	>4	**<1**	1	---
Titanium	ppm	ASTM D5185(m)		**0**	0	---
Silver	ppm	ASTM D5185(m)	>3	**1**	1	---
Aluminum	ppm	ASTM D5185(m)	>20	**8**	6	---
Lead	ppm	ASTM D5185(m)	>40	**12**	3	---
Copper	ppm	ASTM D5185(m)	>330	**441**	108	---
Tin	ppm	ASTM D5185(m)	>15	**2**	3	---
Antimony	ppm	ASTM D5185(m)		**0**	0	---
Vanadium	ppm	ASTM D5185(m)		**0**	0	---
Beryllium	ppm	ASTM D5185(m)		**0**	0	---
Cadmium	ppm	ASTM D5185(m)		**0**	0	---

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	**21**	354	---
Barium	ppm	ASTM D5185(m)	0	**<1**	<1	---
Molybdenum	ppm	ASTM D5185(m)	60	**72**	125	---
Manganese	ppm	ASTM D5185(m)	0	**1**	4	---
Magnesium	ppm	ASTM D5185(m)	1010	**931**	671	---
Calcium	ppm	ASTM D5185(m)	1070	**1153**	1480	---
Phosphorus	ppm	ASTM D5185(m)	1150	**963**	733	---
Zinc	ppm	ASTM D5185(m)	1270	**1118**	793	---
Sulfur	ppm	ASTM D5185(m)	2060	**2238**	2082	---
Lithium	ppm	ASTM D5185(m)		**<1**	<1	---

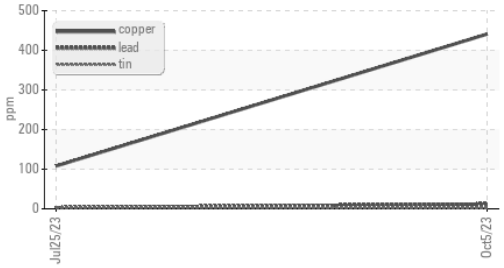
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	**9**	▲ 37	---
Sodium	ppm	ASTM D5185(m)		**2**	3	---
Potassium	ppm	ASTM D5185(m)	>20	**19**	11	---
Fuel	%	ASTM D7593*	>5	**0.6**	0.6	---

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>3	**0.2**	0	---
Nitration	Abs/cm	ASTM D7624*	>20	**9.4**	7.6	---
Sulfation	Abs/.1mm	ASTM D7415*	>30	**20.5**	26.7	---

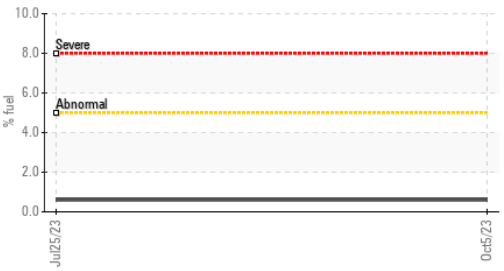
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**17.0**	21.5	---

OIL ANALYSIS REPORT

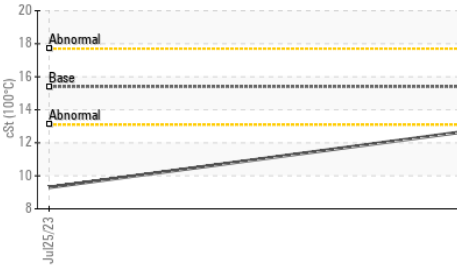
Non-ferrous Metals



Fuel Dilution



Viscosity @ 100°C

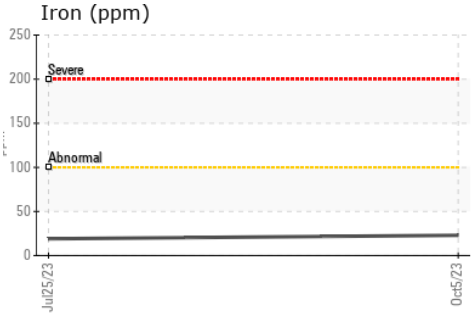


VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.2	**NEG**	NEG	---
Free Water	scalar	Visual*		**NEG**	NEG	---

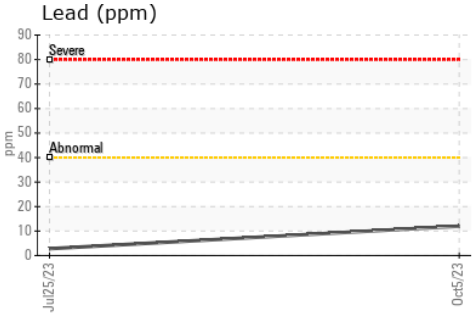
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	**12.8**	▲ 9.3	---

GRAPHS

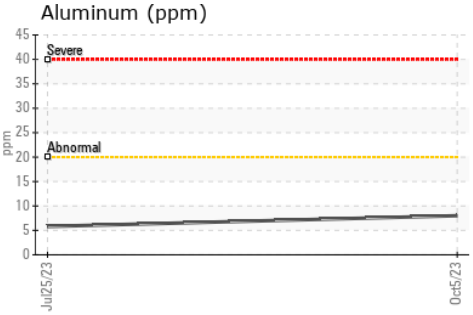
Iron (ppm)



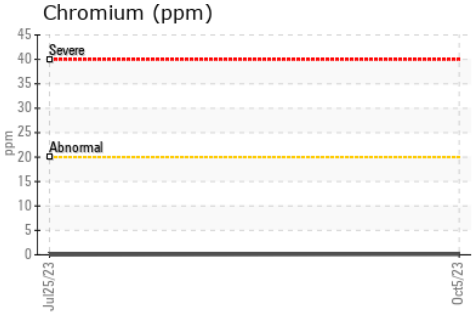
Lead (ppm)



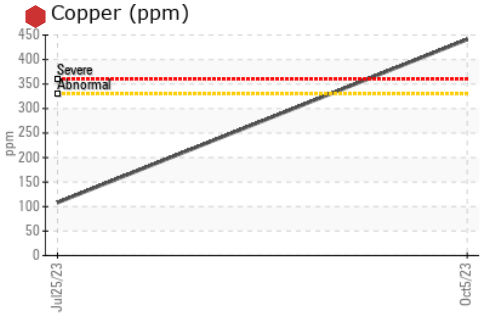
Aluminum (ppm)



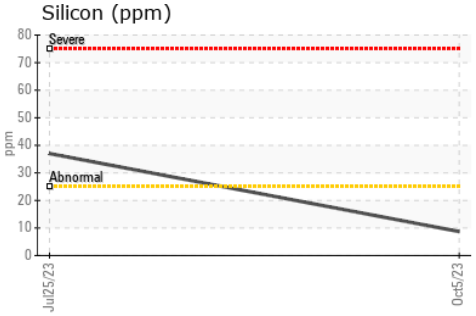
Chromium (ppm)



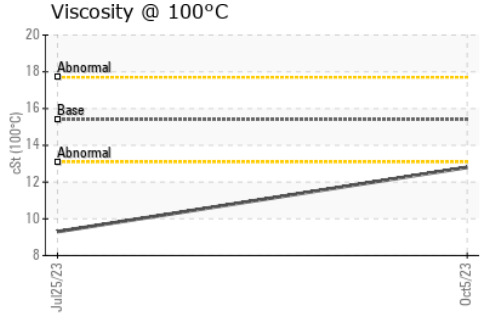
Copper (ppm)



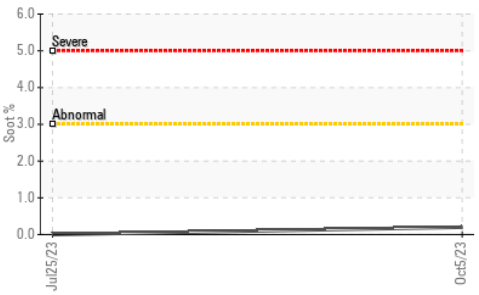
Silicon (ppm)



Viscosity @ 100°C



Soot %



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : GFL0094466
Lab Number : 02587472
Unique Number : 5656538
Test Package : MOB 1 (Additional Tests: FuelDilution, PercentFuel)

Received : 06 Oct 2023
Diagnosed : 10 Oct 2023
Diagnostician : Kevin Marson

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.

GFL Environmental - 222 - Sandhill
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gcook@gflenv.com
T: (519)940-4167
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Report Id: GFL222 [WCAMIS] 02587472 (Generated: 10/10/2023 15:50:51) Rev: 1

Submitted By: Kim Thompson