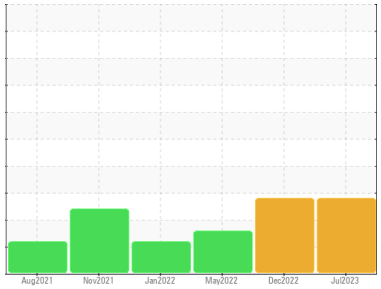
OIL ANALYSIS REPORT

Sample Rating Trend



FUEL

Machine Id
450003
Component
Diesel Engine
Fluid
MOTORCRAFT SUPER PREMIUM SAE 10W30 (--- GAL)

DIAGNOSIS

Recommendation
We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear
Iron ppm levels are abnormal. Cylinder, crank, or cam shaft wear is indicated.

Contamination
There is a high amount of fuel present in the oil. Tests confirm the presence of fuel 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		**GFL0077006**	GFL0054665	GFL0024422
Sample Date		Client Info		**30 Jul 2023**	10 Dec 2022	31 May 2022
Machine Age	hrs	Client Info		**5118**	0	0
Oil Age	hrs	Client Info		**618**	0	600
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**SEVERE**	SEVERE	ABNORMAL

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

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**17**	0	0
Iron	ppm	ASTM D5185(m)	>100	▲ **179**	▲ 208	▲ 177
Chromium	ppm	ASTM D5185(m)	>20	**5**	6	7
Nickel	ppm	ASTM D5185(m)	>2	**<1**	1	<1
Titanium	ppm	ASTM D5185(m)	>2	**0**	<1	0
Silver	ppm	ASTM D5185(m)	>2	**<1**	0	<1
Aluminum	ppm	ASTM D5185(m)	>25	**4**	5	4
Lead	ppm	ASTM D5185(m)	>40	**<1**	<1	1
Copper	ppm	ASTM D5185(m)	>330	**2**	3	4
Tin	ppm	ASTM D5185(m)	>15	**0**	0	0
Antimony	ppm	ASTM D5185(m)		**0**	<1	0
Vanadium	ppm	ASTM D5185(m)		**<1**	<1	<1
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**15**	2	7
Barium	ppm	ASTM D5185(m)		**0**	0	0
Molybdenum	ppm	ASTM D5185(m)		**38**	46	27
Manganese	ppm	ASTM D5185(m)		**2**	3	4
Magnesium	ppm	ASTM D5185(m)		**583**	715	416
Calcium	ppm	ASTM D5185(m)		**1177**	935	1522
Phosphorus	ppm	ASTM D5185(m)		**891**	866	885
Zinc	ppm	ASTM D5185(m)		**1021**	967	1023
Sulfur	ppm	ASTM D5185(m)		**2075**	1952	2284
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	**17**	12	14
Sodium	ppm	ASTM D5185(m)		**7**	3	9
Potassium	ppm	ASTM D5185(m)	>20	**3**	<1	3
Fuel	%	ASTM D7593*	>5	⬢ **14**	⬢ 12.4	▲ 7.3

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>3	**0.9**	1	0.8
Nitration	Abs/cm	ASTM D7624*	>20	**21.0**	23.3	19.6
Sulfation	Abs/.1mm	ASTM D7415*	>30	**40.1**	42.3	39.7

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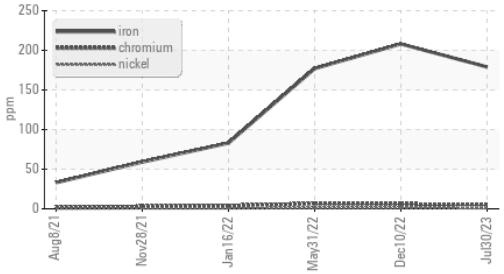
Ferrous Alloys



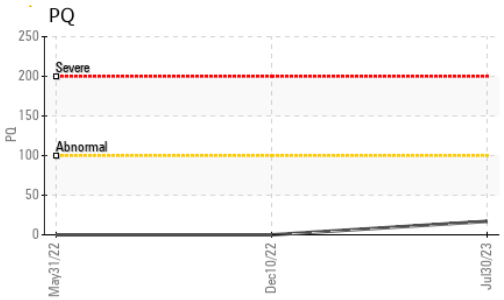
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**55.9**	62.1	47.9

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

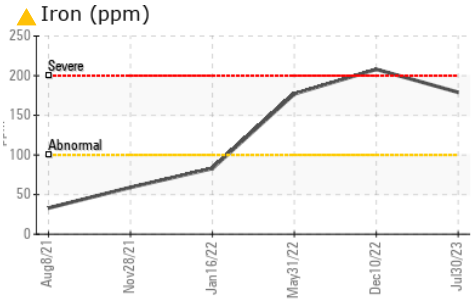
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	10.8	**9.7**	9.6	10.4

GRAPHS

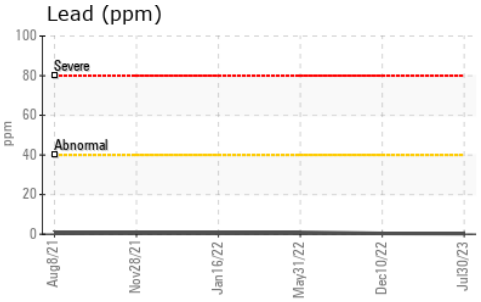
PQ



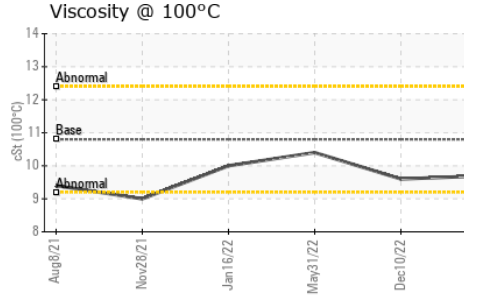
Iron (ppm)



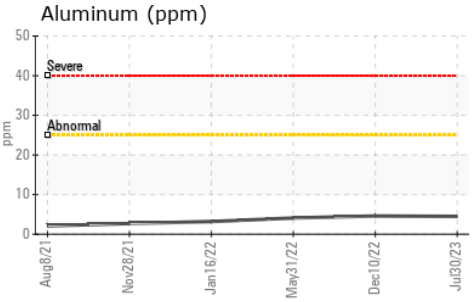
Lead (ppm)



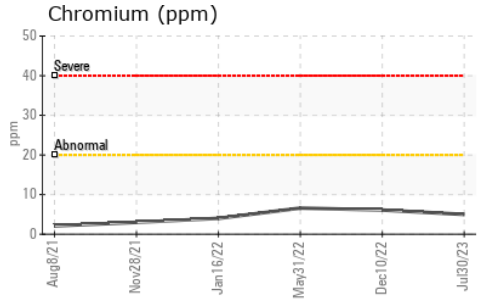
Viscosity @ 100°C



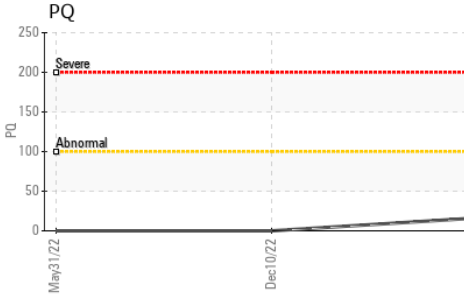
Aluminum (ppm)



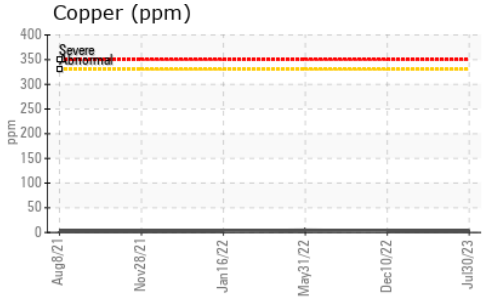
Chromium (ppm)



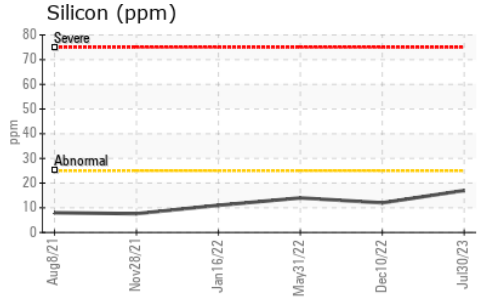
PQ



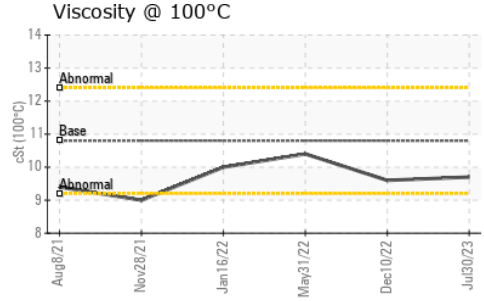
Copper (ppm)



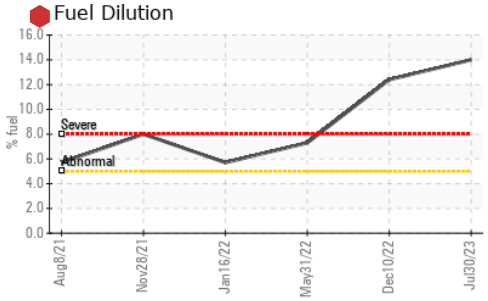
Silicon (ppm)



Viscosity @ 100°C



Fuel Dilution



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **GFL Environmental - 575 - Squamish Hauling**
Sample No. : GFL0077006 **Received** : 02 Aug 2023 38950 Queens Way,
Lab Number : 02573578 **Diagnosed** : 03 Aug 2023 Squamish, BC
Unique Number : 5618629 **Diagnostician** : Kevin Marson CA V8B 0K8
Test Package : MOB 1 (Additional Tests: PercentFuel, PQ) Contact: Dean Imbeau

To discuss this sample report, contact Customer Service at 1-800-268-2131. dimbeau@gflenv.com
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T: (604)892-5604
Validity of results and interpretation are based on the sample and information as supplied. F: (604)892-5238