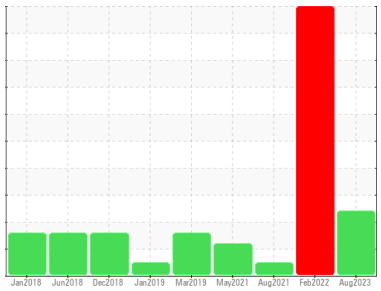
OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Machine Id
4522
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 10W30 (--- LTR)

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 from the component if this has not already been done. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

Nickel ppm levels are abnormal. Exhaust valve wear is indicated.

Contamination

There is a moderate concentration of dirt present in the oil. Test for glycol is negative. High amount of ingressed dirt has caused abrasive wear to the component.

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		**GFL0090619**	GFL0041433	GFL0032613
Sample Date		Client Info		**21 Aug 2023**	14 Feb 2022	02 Aug 2021
Machine Age	hrs	Client Info		**15247**	0	26088
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**ABNORMAL**	SEVERE	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	**<1.0**	<1.0	2

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>120	**14**	5	12
Chromium	ppm	ASTM D5185(m)	>20	**<1**	<1	<1
Nickel	ppm	ASTM D5185(m)	>5	▲ **8**	<1	<1
Titanium	ppm	ASTM D5185(m)	>2	**0**	0	0
Silver	ppm	ASTM D5185(m)	>2	**0**	<1	0
Aluminum	ppm	ASTM D5185(m)	>20	**<1**	2	5
Lead	ppm	ASTM D5185(m)	>40	**<1**	5	<1
Copper	ppm	ASTM D5185(m)	>330	**7**	64	1
Tin	ppm	ASTM D5185(m)	>15	**1**	<1	<1
Antimony	ppm	ASTM D5185(m)		**0**	<1	0
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	<1	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	2	**3**	11	19
Barium	ppm	ASTM D5185(m)	0	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	50	**57**	165	40
Manganese	ppm	ASTM D5185(m)	0	**<1**	<1	<1
Magnesium	ppm	ASTM D5185(m)	950	**930**	574	543
Calcium	ppm	ASTM D5185(m)	1050	**1011**	583	1513
Phosphorus	ppm	ASTM D5185(m)	995	**1018**	667	770
Zinc	ppm	ASTM D5185(m)	1180	**1136**	753	883
Sulfur	ppm	ASTM D5185(m)	2600	**2493**	1716	2019
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	▲ **26**	39	9
Sodium	ppm	ASTM D5185(m)		**3**	▲ 2460	6
Potassium	ppm	ASTM D5185(m)	>20	**1**	▲ 139	2
Glycol	%	ASTM D7922*		**0.0**	⬢ >.70	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>4	**0**	0	0.9
Nitration	Abs/cm	ASTM D7624*	>20	**9.1**	13.7	8.6
Sulfation	Abs/.1mm	ASTM D7415*	>30	**20.9**	0.7	25.2

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**17.7**	12.2	23.2

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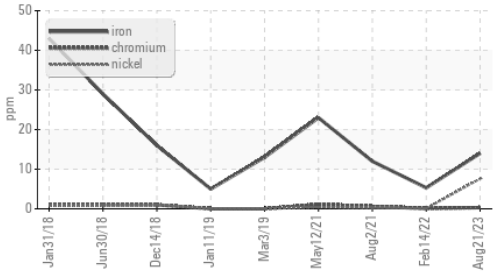
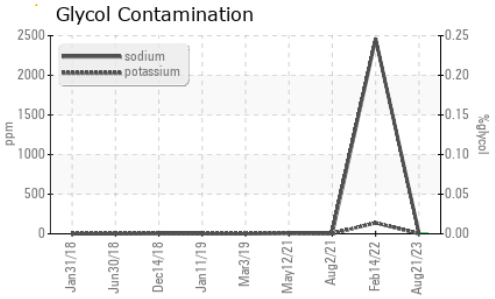
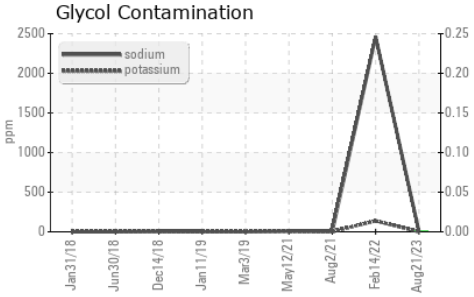
Ferrous Alloys



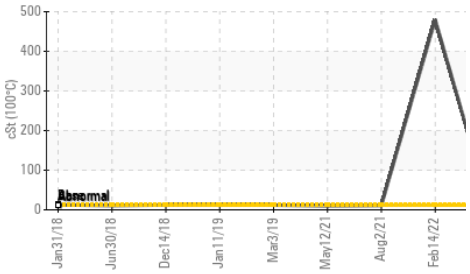
Glycol Contamination



Glycol Contamination



Viscosity @ 100°C

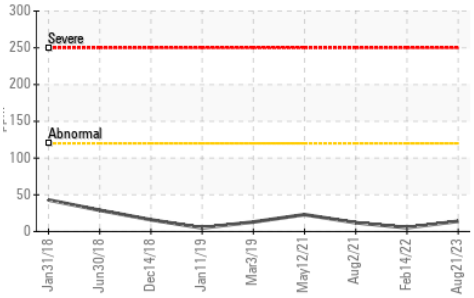


VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.2	**NEG**	▲ .2%	NEG
Free Water	scalar	Visual*		**NEG**	⬢ 1%	NEG

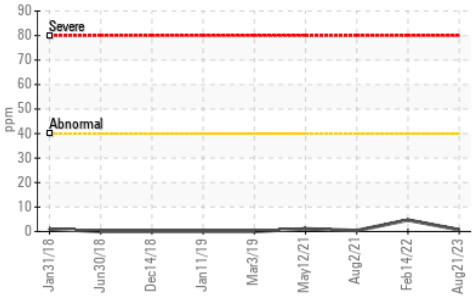
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	12.00	**10.3**	480	10.8

GRAPHS

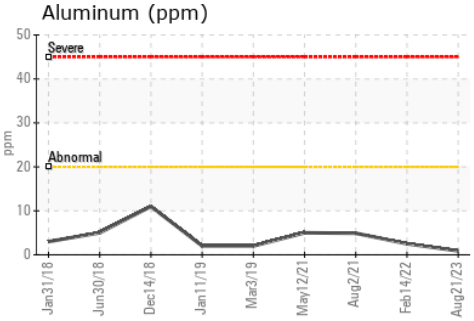
Iron (ppm)



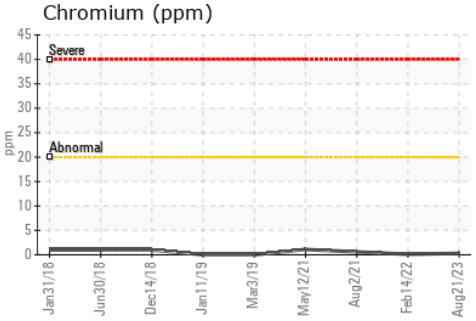
Lead (ppm)



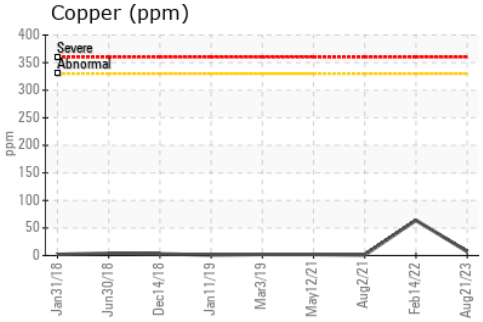
Aluminum (ppm)



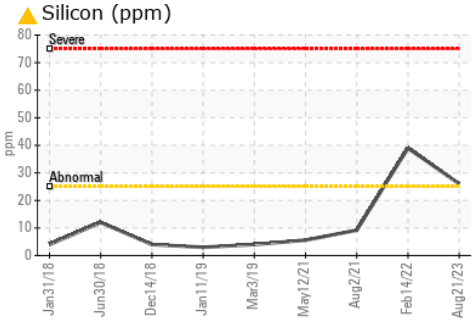
Chromium (ppm)



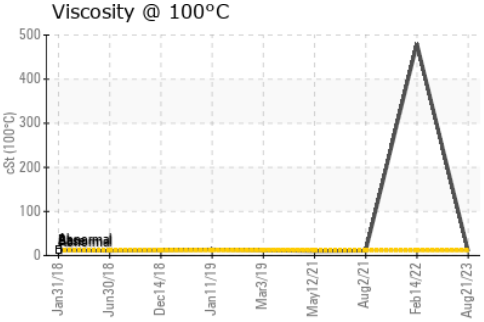
Copper (ppm)



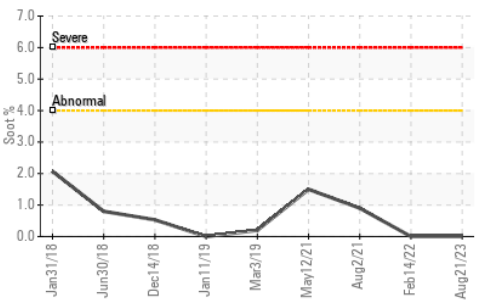
Silicon (ppm)



Viscosity @ 100°C



Soot %



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **GFL Environmental - 554 - Edmonton SW**
Sample No. : GFL0090619
Lab Number : 02579572
Unique Number : 5632632
Test Package : MOB 1

Received : 31 Aug 2023
Diagnosed : 01 Sep 2023
Diagnostician : Kevin Marson

8409 -15th Street NW
Edmonton, AB
CA T6P 0B8
Contact: Tim Greig
tgreig@gflenv.com
T:
F:

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.