



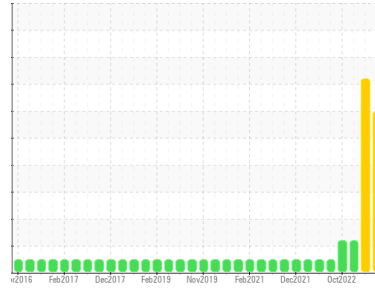
OIL ANALYSIS REPORT

Sample Rating Trend

WEAR



Area
GFL216
Machine Id
9191
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (36 LTR)



DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. No other corrective action is recommended at this time.

Wear

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

Contamination

Light fuel dilution occurring. Test for glycol is negative. No other contaminants were detected 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		GFL0093786	GFL0084238	GFL0054321
Sample Date	Client Info		11 Sep 2023	21 Jun 2023	16 Jan 2023
Machine Age	kms	Client Info	335276	327503	312633
Oil Age	kms	Client Info	0	0	0
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			SEVERE	SEVERE	ATTENTION

WEAR METALS

	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185(m)	>120	11	30	16
Chromium	ppm	ASTM D5185(m)	>20	<1	<1	<1
Nickel	ppm	ASTM D5185(m)	>5	9	19	<1
Titanium	ppm	ASTM D5185(m)	>2	0	0	<1
Silver	ppm	ASTM D5185(m)	>2	<1	0	0
Aluminum	ppm	ASTM D5185(m)	>20	2	5	9
Lead	ppm	ASTM D5185(m)	>40	1	2	2
Copper	ppm	ASTM D5185(m)	>330	2	6	2
Tin	ppm	ASTM D5185(m)	>15	<1	<1	<1
Antimony	ppm	ASTM D5185(m)		0	0	<1
Vanadium	ppm	ASTM D5185(m)		0	0	0
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)	0	3	3	3
Barium	ppm	ASTM D5185(m)	0	<1	0	0
Molybdenum	ppm	ASTM D5185(m)	60	59	57	58
Manganese	ppm	ASTM D5185(m)	0	<1	1	<1
Magnesium	ppm	ASTM D5185(m)	1010	932	880	822
Calcium	ppm	ASTM D5185(m)	1070	1027	979	1017
Phosphorus	ppm	ASTM D5185(m)	1150	933	833	845
Zinc	ppm	ASTM D5185(m)	1270	1157	1068	1094
Sulfur	ppm	ASTM D5185(m)	2060	2316	2316	2487
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m)	>25	3	4	8
Sodium	ppm	ASTM D5185(m)		54	525	2845
Potassium	ppm	ASTM D5185(m)	>20	14	7	30
Fuel	%	ASTM D7593*	>3.0	2.1	<1.0	<1.0
Glycol	%	ASTM D7922*		0.0	0.0	0.0

INFRA-RED

	method	limit/base	current	history1	history2	
Soot %	%	ASTM D7844*	>4	0.1	0.4	0.4
Nitration	Abs/cm	ASTM D7624*	>20	8.0	10.1	16.0
Sulfation	Abs/.1mm	ASTM D7415*	>30	19.7	21.1	24.7

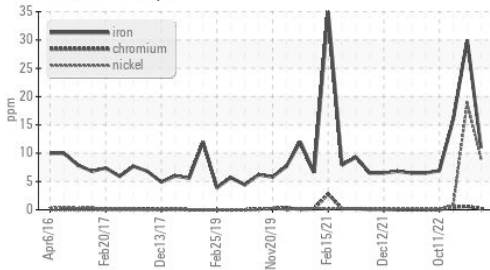
FLUID DEGRADATION

	method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	ASTM D7414*	>25	15.6	17.3	17.8

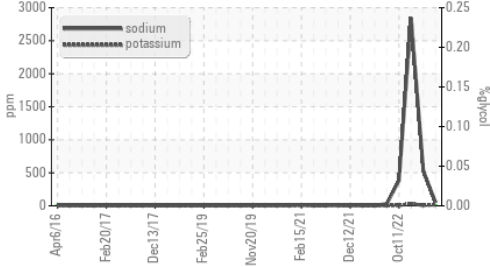


OIL ANALYSIS REPORT

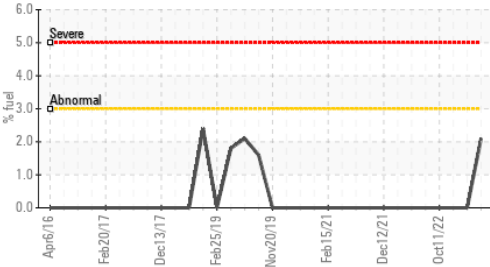
Ferrous Alloys



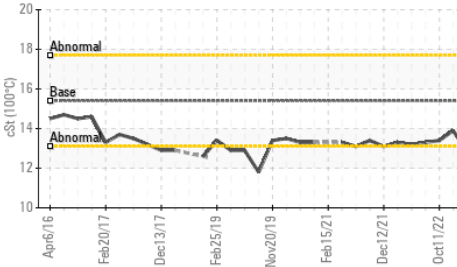
Glycol Contamination



Fuel Dilution



Viscosity @ 100°C



VISUAL

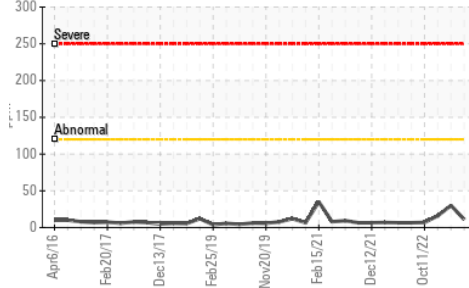
method	limit/base	current	history1	history2
Emulsified Water	Visual*	>0.2	NEG	NEG
Free Water	Visual*		NEG	NEG

FLUID PROPERTIES

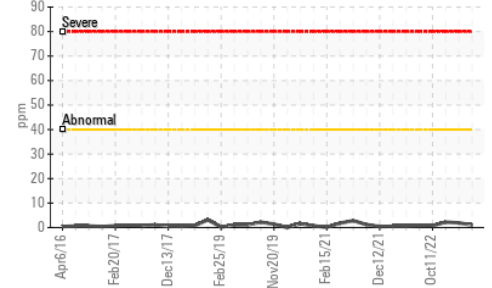
method	limit/base	current	history1	history2
Visc @ 100°C	ASTM D7279(m)	15.4	12.8	13.9

GRAPHS

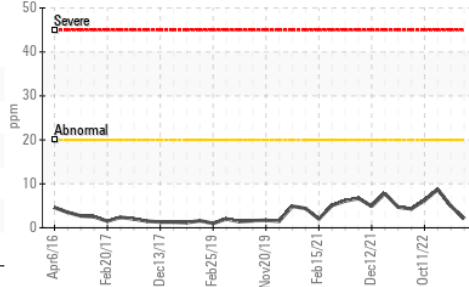
Iron (ppm)



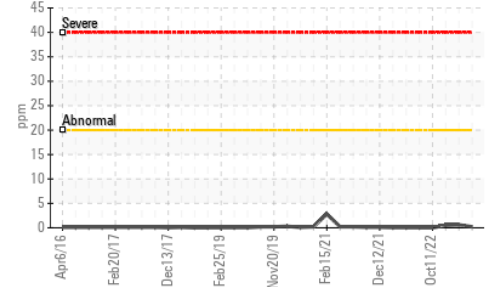
Lead (ppm)



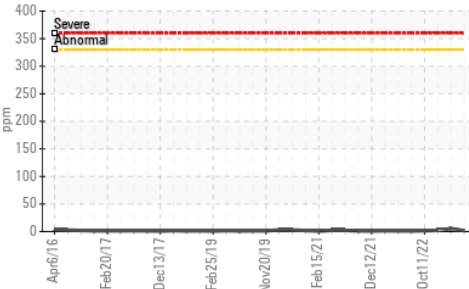
Aluminum (ppm)



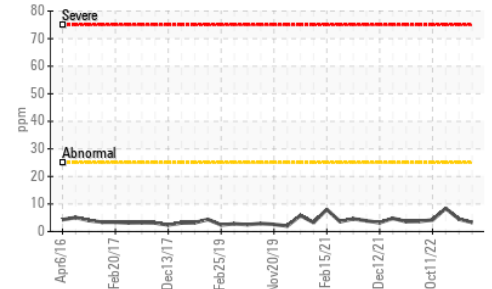
Chromium (ppm)



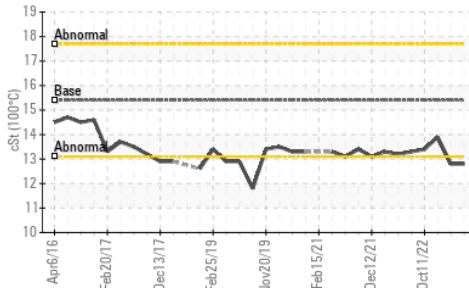
Copper (ppm)



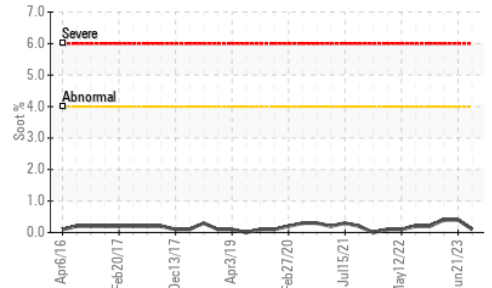
Silicon (ppm)



Viscosity @ 100°C



Soot %



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 252 - GTA Hauling
Sample No. : GFL0093786 **Received** : 20 Oct 2023
Lab Number : 02590516 **Diagnosed** : 23 Oct 2023
Unique Number : 5659582 **Diagnostician** : Kevin Marson
Test Package : MOB 1 (Additional Tests: FuelDilution, Glycol, PercentFuel)

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North York, ON
CA M9L 1W2
Contact: Amanda Cipollone
acipollone@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.

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F: