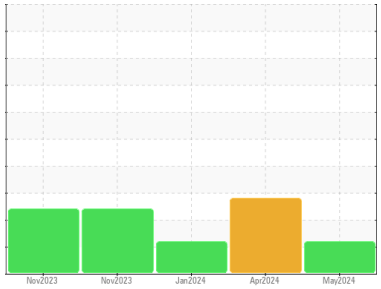
OIL ANALYSIS REPORT

Area
(H917016) gfl knoxville
Machine Id
912107
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (11 GAL)

Sample Rating Trend



FUEL

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
All component wear rates are normal.

Contamination
There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Fluid Condition
The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0106935**	GFL0106952	GFL0098798
Sample Date		Client Info		**23 May 2024**	11 Apr 2024	22 Jan 2024
Machine Age	hrs	Client Info		**5755**	5570	5168
Oil Age	hrs	Client Info		**136**	100	536
Oil Changed		Client Info		**Not Changd**	Not Changd	Changed
Sample Status				**ABNORMAL**	SEVERE	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	**8**	37	17
Chromium	ppm	ASTM D5185m	>20	**<1**	1	<1
Nickel	ppm	ASTM D5185m	>5	**1**	3	2
Titanium	ppm	ASTM D5185m	>2	**5**	93	67
Silver	ppm	ASTM D5185m	>2	**1**	0	0
Aluminum	ppm	ASTM D5185m	>20	**2**	4	4
Lead	ppm	ASTM D5185m	>40	**<1**	2	0
Copper	ppm	ASTM D5185m	>330	**2**	8	4
Tin	ppm	ASTM D5185m	>15	**<1**	1	<1
Vanadium	ppm	ASTM D5185m		**<1**	1	<1
Cadmium	ppm	ASTM D5185m		**<1**	<1	<1

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**12**	51	100
Barium	ppm	ASTM D5185m	0	**<1**	0	0
Molybdenum	ppm	ASTM D5185m	60	**54**	24	18
Manganese	ppm	ASTM D5185m	0	**<1**	1	<1
Magnesium	ppm	ASTM D5185m	1010	**737**	550	432
Calcium	ppm	ASTM D5185m	1070	**922**	1988	1459
Phosphorus	ppm	ASTM D5185m	1150	**837**	1202	925
Zinc	ppm	ASTM D5185m	1270	**1016**	1384	1117
Sulfur	ppm	ASTM D5185m	2060	**2623**	4282	3650

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**6**	21	9
Sodium	ppm	ASTM D5185m		**2**	3	3
Potassium	ppm	ASTM D5185m	>20	**3**	6	3
Fuel	%	ASTM D3524	>3.0	▲ **3.9**	▲ 7.4	▲ 4.4

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>4	**0.2**	0.4	0.2
Nitration	Abs/cm	*ASTM D7624	>20	**5.7**	8.8	6.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	**17.1**	22.3	18.5

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**12.7**	17.2	13.6
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**6.7**	5.1	7.6

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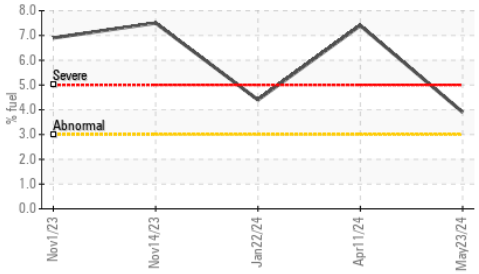
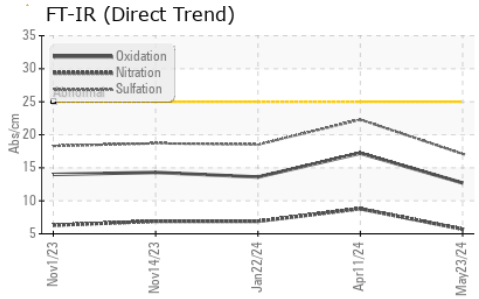
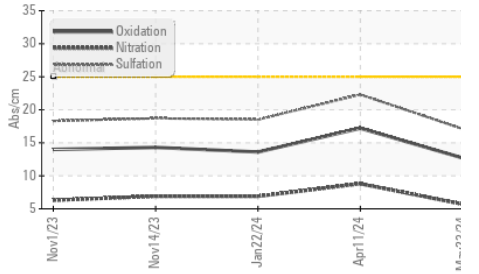
Fuel Dilution



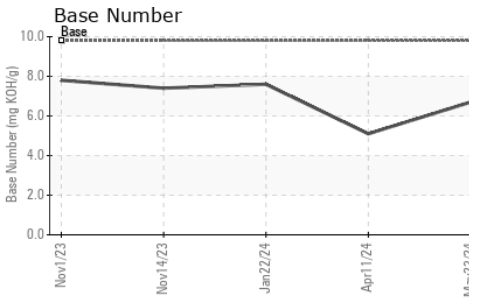
FT-IR (Direct Trend)



FT-IR (Direct Trend)



Base Number

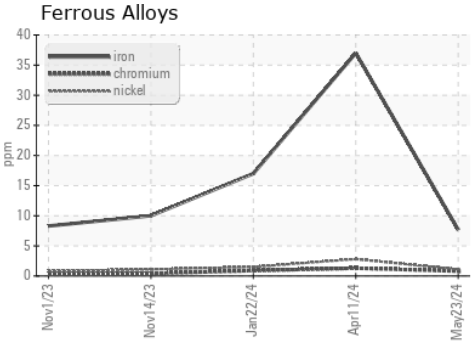


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

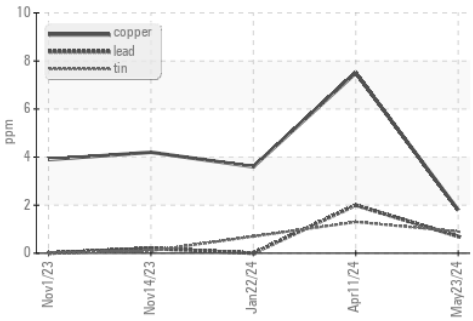
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	▲ **11.3**	▲ 10.3	▲ 11.0

GRAPHS

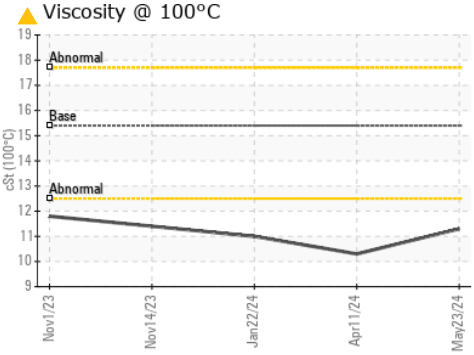
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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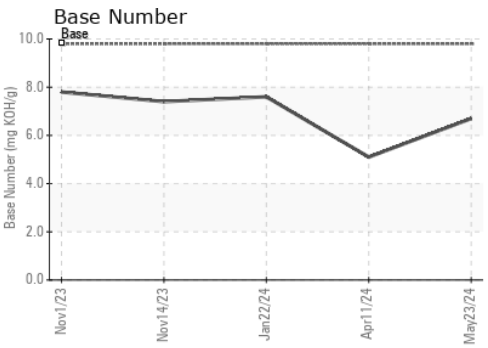

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0106935
Lab Number : 06191853
Unique Number : 11048605
Test Package : FLEET (Additional Tests: PercentFuel)

Received : 28 May 2024
Tested : 29 May 2024
Diagnosed : 29 May 2024 - Wes Davis

GFL Environmental - 097 - Knoxville Hauling
1901 Sutherland Ave
Knoxville, TN
US 37921
Contact: Doug Weeden
dweeden@gflenv.com
T:
F:

To discuss this sample report, contact Customer Service at 1-800-237-1369.
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)