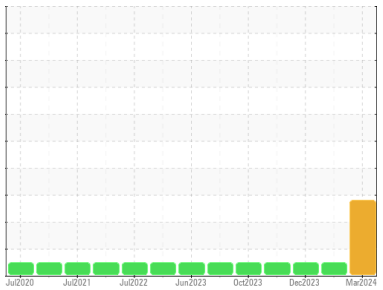
OIL ANALYSIS REPORT

Sample Rating Trend



VISUAL METAL

Machine Id
428011-4035
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- LTR)

DIAGNOSIS

Recommendation
No corrective action is recommended at this time. We recommend an early resample to monitor this condition.

Wear
The aluminum level is abnormal. The tin level is abnormal. Piston wear is indicated.

Contamination
There is no indication of any contamination in the oil.

Fluid Condition
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0112807**	GFL0101326	GFL0101340
Sample Date		Client Info		**30 Mar 2024**	11 Jan 2024	28 Dec 2023
Machine Age	hrs	Client Info		**16978**	16434	16300
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**Not Changd**	Changed	Not Changd
Sample Status				**ABNORMAL**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>5	**<1.0**	<1.0	<1.0
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	>100	**37**	9	0
Chromium	ppm	ASTM D5185m	>20	**0**	0	1
Nickel	ppm	ASTM D5185m	>4	**<1**	0	0
Titanium	ppm	ASTM D5185m		**<1**	0	0
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	▲ **33**	7	2
Lead	ppm	ASTM D5185m	>40	**2**	0	0
Copper	ppm	ASTM D5185m	>330	**0**	<1	0
Tin	ppm	ASTM D5185m	>15	▲ **17**	1	0
Vanadium	ppm	ASTM D5185m		**<1**	<1	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**4**	2	0
Barium	ppm	ASTM D5185m	0	**0**	0	4
Molybdenum	ppm	ASTM D5185m	60	**53**	61	55
Manganese	ppm	ASTM D5185m	0	**<1**	<1	0
Magnesium	ppm	ASTM D5185m	1010	**927**	989	862
Calcium	ppm	ASTM D5185m	1070	**1116**	1117	1034
Phosphorus	ppm	ASTM D5185m	1150	**1034**	1081	1003
Zinc	ppm	ASTM D5185m	1270	**1236**	1283	1144
Sulfur	ppm	ASTM D5185m	2060	**3905**	3169	3386

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**5**	5	0
Sodium	ppm	ASTM D5185m		**1**	<1	0
Potassium	ppm	ASTM D5185m	>20	**1**	1	0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.2**	0.3	0.2
Nitration	Abs/cm	*ASTM D7624	>20	**5.3**	6.8	6.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	**17.6**	18.4	17.7

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**13.3**	14.2	13.9
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**8.5**	8.7	9.0

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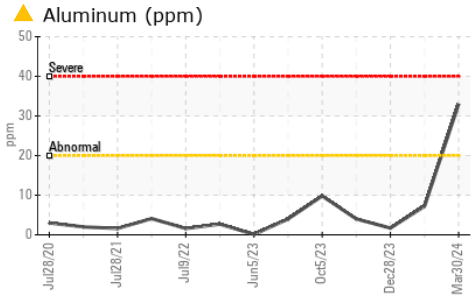
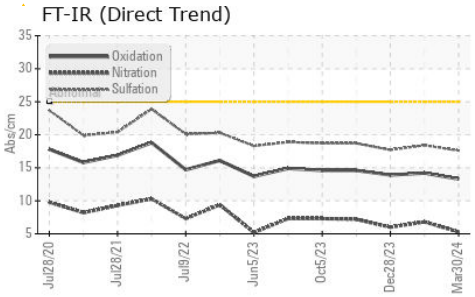
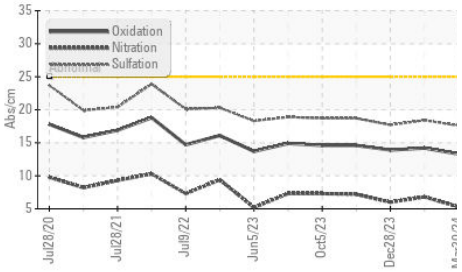
Aluminum (ppm)



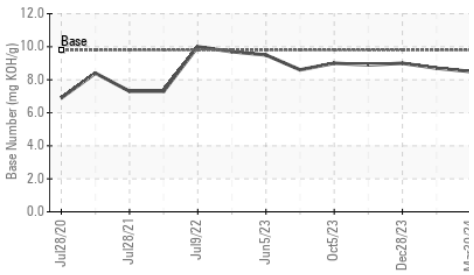
FT-IR (Direct Trend)



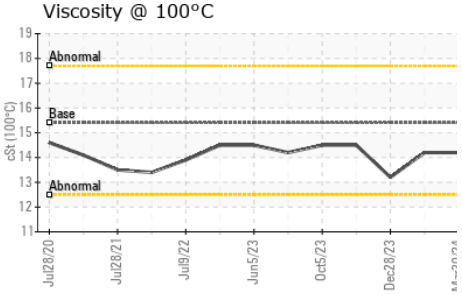
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C

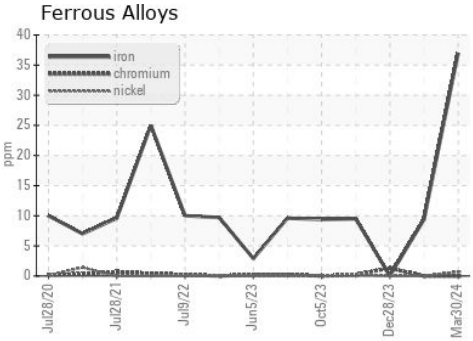


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	▲ **HEAVY**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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

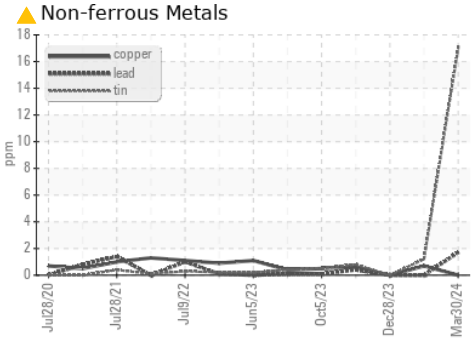
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	**14.2**	14.2	13.2

GRAPHS

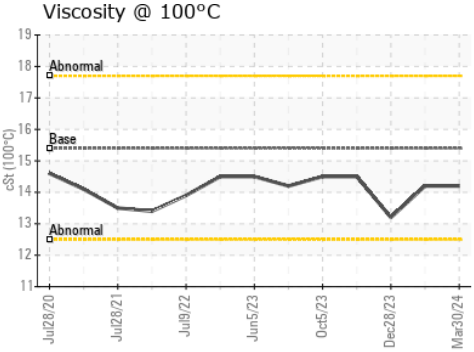
Ferrous Alloys



▲ Non-ferrous Metals



Viscosity @ 100°C



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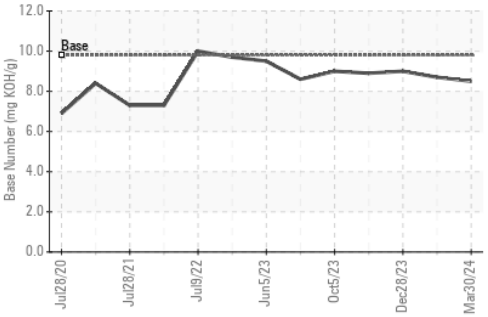

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0112807
Lab Number : 06142118
Unique Number : 10966926
Test Package : FLEET

Received : 08 Apr 2024
Tested : 15 Apr 2024
Diagnosed : 15 Apr 2024 - Jonathan Hester

GFL Environmental - 654 - Richmond Hauling
11800 Lewis Road
Chester, VA
US 23831
Contact: Jimmy Mayes
jmayes@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)

Report Id: GFL654 [WUSCAR] 06142118 (Generated: 04/15/2024 14:29:38) Rev: 1

Submitted By: TECHNICIAN ACCOUNT