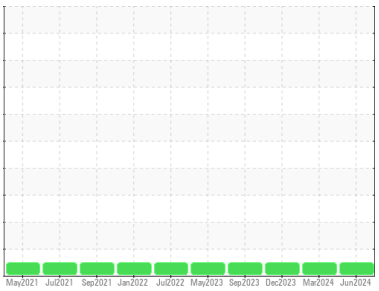
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
910081
Component
Diesel Engine
Fluid
CASTROL TECTION EXTRA SAE 15W-40 (42 LTR)

DIAGNOSIS

Recommendation
Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

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

Fluid Condition
The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0118933**	GFL0086801	GFL0086775
Sample Date		Client Info		**24 Jun 2024**	12 Mar 2024	22 Dec 2023
Machine Age	hrs	Client Info		**8646**	7971	7413
Oil Age	hrs	Client Info		**1200**	600	600
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**NORMAL**	NORMAL	NORMAL

CONTAMINATION	method	limit/base	current	history1	history2
Fuel	WC Method	>3.0	**<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 D5185(m)	>120	**10**	11	10
Chromium	ppm	ASTM D5185(m)	>20	**<1**	<1	<1
Nickel	ppm	ASTM D5185(m)	>5	**0**	<1	<1
Titanium	ppm	ASTM D5185(m)	>2	**<1**	<1	0
Silver	ppm	ASTM D5185(m)	>2	**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>20	**2**	4	4
Lead	ppm	ASTM D5185(m)	>40	**2**	1	<1
Copper	ppm	ASTM D5185(m)	>330	**1**	1	1
Tin	ppm	ASTM D5185(m)	>15	**<1**	<1	<1
Antimony	ppm	ASTM D5185(m)		**0**	0	0
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

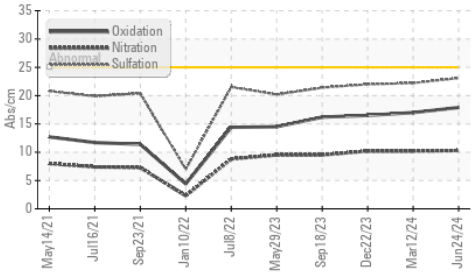
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	30	**20**	27	23
Barium	ppm	ASTM D5185(m)		**0**	0	0
Molybdenum	ppm	ASTM D5185(m)		**87**	88	87
Manganese	ppm	ASTM D5185(m)		**<1**	0	0
Magnesium	ppm	ASTM D5185(m)	110	**133**	81	67
Calcium	ppm	ASTM D5185(m)	2740	**1983**	2138	2129
Phosphorus	ppm	ASTM D5185(m)	1240	**919**	974	938
Zinc	ppm	ASTM D5185(m)	1350	**1133**	1137	1126
Sulfur	ppm	ASTM D5185(m)	3520	**2623**	2940	2917
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	**4**	4	4
Sodium	ppm	ASTM D5185(m)		**5**	6	4
Potassium	ppm	ASTM D5185(m)	>20	**1**	<1	2

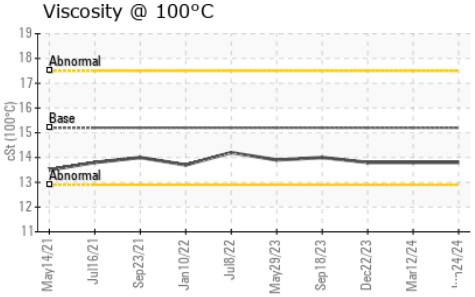
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>4	**0.5**	0.4	0.4
Nitration	Abs/cm	ASTM D7624*	>20	**10.3**	10.2	10.2
Sulfation	Abs/.1mm	ASTM D7415*	>30	**23.1**	22.2	22.0

OIL ANALYSIS REPORT

FT-IR (Direct Trend)



Viscosity @ 100°C



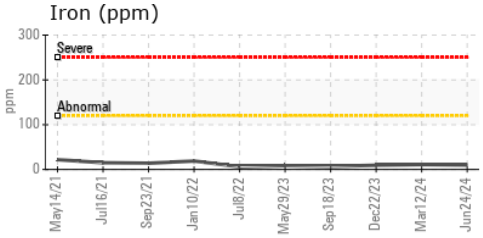
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**17.9**	17.0	16.5

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

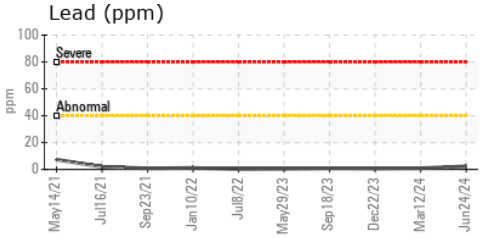
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.2	**13.8**	13.8	13.8

GRAPHS

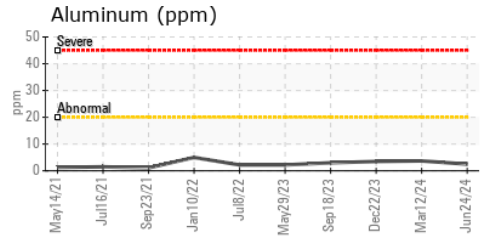
Iron (ppm)



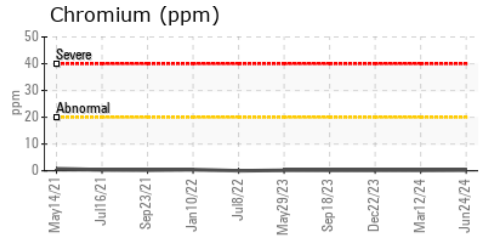
Lead (ppm)



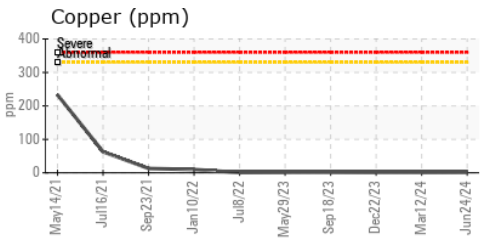
Aluminum (ppm)



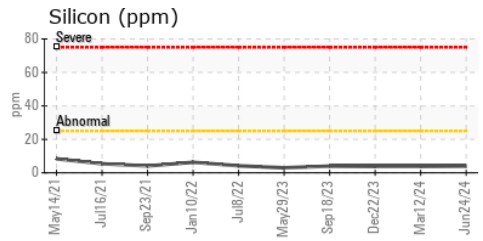
Chromium (ppm)



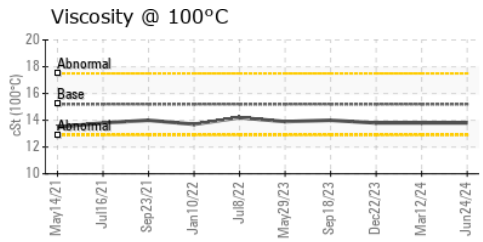
Copper (ppm)



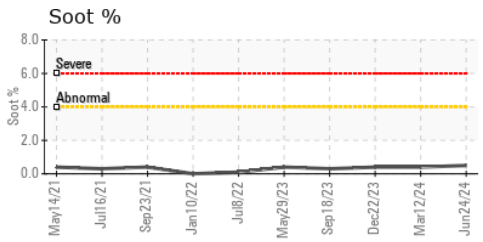
Silicon (ppm)



Viscosity @ 100°C



Soot %



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : GFL0118933
Lab Number : 02643998
Unique Number : 5801537
Test Package : MOB 1 (Additional Tests: Visual)

Received : 25 Jun 2024
Tested : 25 Jun 2024
Diagnosed : 25 Jun 2024 - Wes Davis

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.

GFL Environmental - 222 - Sandhill
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ORANGEVILLE, ON
CA L9W 3X5
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Report Id: GFL222 [WCAMIS] 02643998 (Generated: 06/25/2024 15:39:41) Rev: 1

Submitted By: Kim Thompson