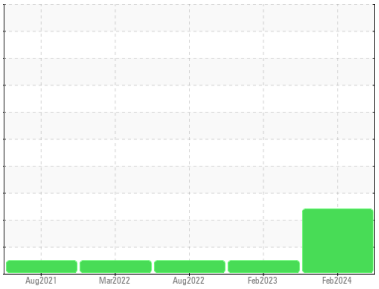
OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Machine Id
527022-603
Component
Diesel Engine
Fluid
CHEVRON DELO 400 XLE 15W40 (--- GAL)

DIAGNOSIS

Recommendation
We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear
An increase in the copper level is noted. All other component wear rates are normal.

Contamination
Elemental level of silicon (Si) above normal.

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

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0110971**	GFL0073526	GFL0030201
Sample Date		Client Info		**23 Feb 2024**	20 Feb 2023	17 Aug 2022
Machine Age	hrs	Client Info		**24640**	23458	22817
Oil Age	hrs	Client Info		**1182**	641	626
Oil Changed		Client Info		**Changed**	Changed	Changed
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	**56**	48	51
Chromium	ppm	ASTM D5185m	>20	**2**	<1	1
Nickel	ppm	ASTM D5185m	>4	**<1**	0	0
Titanium	ppm	ASTM D5185m		**4**	6	<1
Silver	ppm	ASTM D5185m	>3	**0**	0	<1
Aluminum	ppm	ASTM D5185m	>20	**3**	9	16
Lead	ppm	ASTM D5185m	>40	**<1**	2	8
Copper	ppm	ASTM D5185m	>330	**261**	8	11
Tin	ppm	ASTM D5185m	>15	**2**	<1	0
Vanadium	ppm	ASTM D5185m		**0**	0	<1
Cadmium	ppm	ASTM D5185m		**<1**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**45**	111	107
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**43**	74	111
Manganese	ppm	ASTM D5185m		**1**	<1	<1
Magnesium	ppm	ASTM D5185m		**531**	554	587
Calcium	ppm	ASTM D5185m		**1557**	1700	1449
Phosphorus	ppm	ASTM D5185m	760	**829**	685	623
Zinc	ppm	ASTM D5185m	830	**1009**	844	787
Sulfur	ppm	ASTM D5185m	2770	**2691**	2903	2233

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**49**	6	7
Sodium	ppm	ASTM D5185m		**9**	1	<1
Potassium	ppm	ASTM D5185m	>20	**3**	17	24

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.5**	0.6	0.9
Nitration	Abs/cm	*ASTM D7624	>20	**11.2**	11.3	12.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	**22.2**	22.7	27.0

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**21.7**	20.0	23.9
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	**8.0**	7.3	8.5

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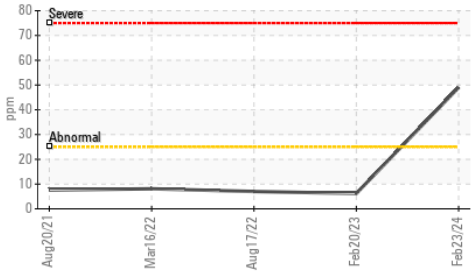
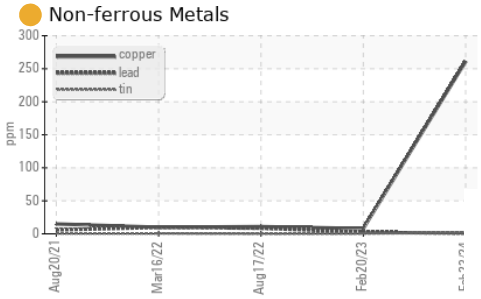
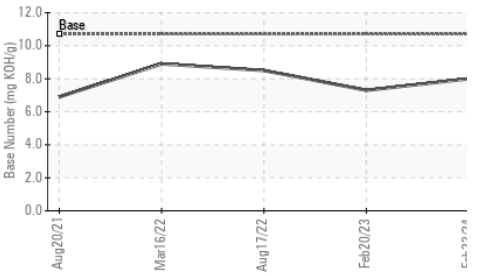
Silicon (ppm)



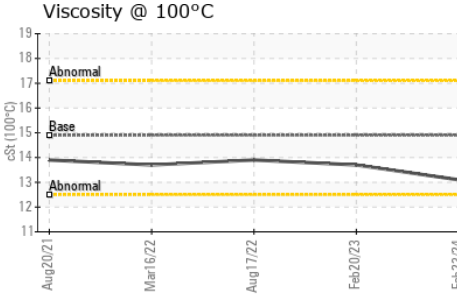
Non-ferrous Metals



Base Number



Viscosity @ 100°C

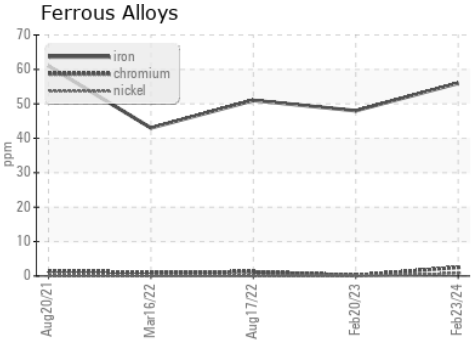


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

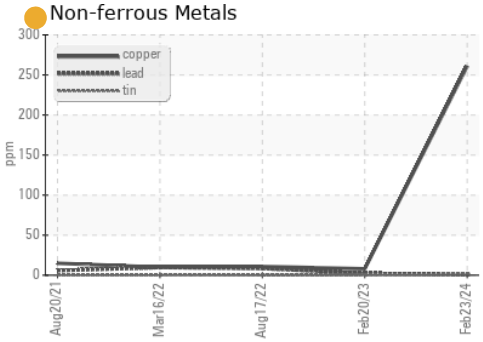
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.9	**13.1**	13.7	13.9

GRAPHS

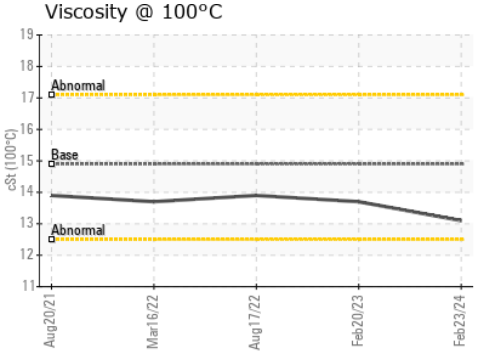
Ferrous Alloys



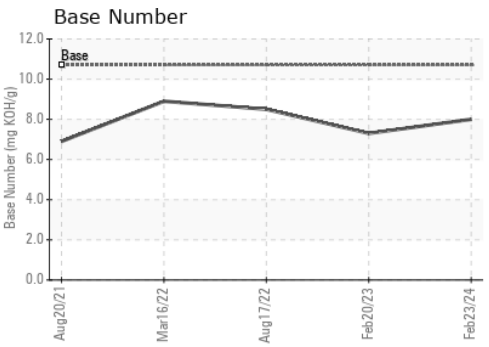
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0110971
Lab Number : 06102765
Unique Number : 10900995
Test Package : FLEET

Received : 28 Feb 2024
Tested : 29 Feb 2024
Diagnosed : 29 Feb 2024 - Don Baldridge

GFL Environmental - 629 - Northern A1
3947 US 131 N
Kalkaska, MI
US 49646-8428
Contact: MITCH HERSHBERGER

T: (231)624-0848
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)