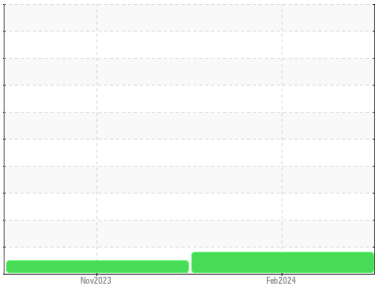
OIL ANALYSIS REPORT

Area
(BD56834) {UNASSIGNED}
Machine Id
914045 MACK TE64R
Component
Diesel Engine
Fluid
TIER ONE 15W40 (--- GAL)

Sample Rating Trend



WEAR

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal.

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 acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0061435**	GFL0061441	---
Sample Date		Client Info		**21 Feb 2024**	13 Nov 2023	---
Machine Age	hrs	Client Info		**1170**	435	---
Oil Age	hrs	Client Info		**1**	435	---
Oil Changed		Client Info		**Changed**	Not Changd	---
Sample Status				**MARGINAL**	NORMAL	---

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	**<1.0**	<1.0	---
Water		WC Method	>0.2	**NEG**	NEG	---
Glycol		WC Method		**NEG**	NEG	---

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	**16**	3	---
Chromium	ppm	ASTM D5185m	>20	**<1**	<1	---
Nickel	ppm	ASTM D5185m	>5	**3**	0	---
Titanium	ppm	ASTM D5185m	>2	**<1**	<1	---
Silver	ppm	ASTM D5185m	>2	**1**	0	---
Aluminum	ppm	ASTM D5185m	>20	**2**	1	---
Lead	ppm	ASTM D5185m	>40	**2**	0	---
Copper	ppm	ASTM D5185m	>330	▲ **202**	6	---
Tin	ppm	ASTM D5185m	>15	**<1**	0	---
Vanadium	ppm	ASTM D5185m		**0**	0	---
Cadmium	ppm	ASTM D5185m		**0**	<1	---

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**11**	17	---
Barium	ppm	ASTM D5185m		**<1**	<1	---
Molybdenum	ppm	ASTM D5185m		**57**	53	---
Manganese	ppm	ASTM D5185m		**<1**	0	---
Magnesium	ppm	ASTM D5185m		**839**	780	---
Calcium	ppm	ASTM D5185m		**1082**	969	---
Phosphorus	ppm	ASTM D5185m		**937**	892	---
Zinc	ppm	ASTM D5185m		**1148**	1091	---
Sulfur	ppm	ASTM D5185m		**2547**	3063	---

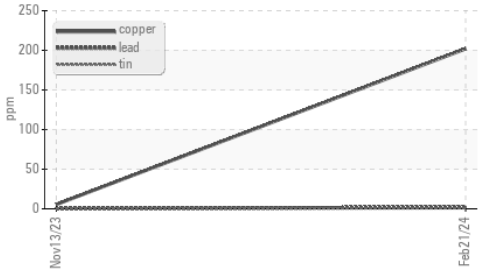
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**8**	29	---
Sodium	ppm	ASTM D5185m		**3**	2	---
Potassium	ppm	ASTM D5185m	>20	**4**	3	---

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>4	**0.5**	0.1	---
Nitration	Abs/cm	*ASTM D7624	>20	**8.3**	4.5	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	**20.3**	17.6	---

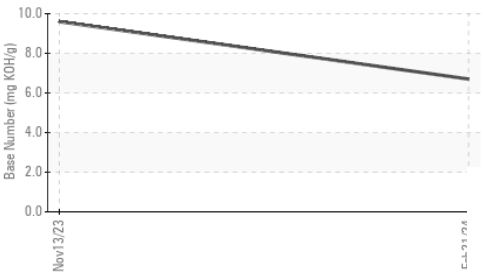
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**16.5**	12.8	---
Base Number (BN)	mg KOH/g	ASTM D2896		**6.7**	9.6	---

OIL ANALYSIS REPORT

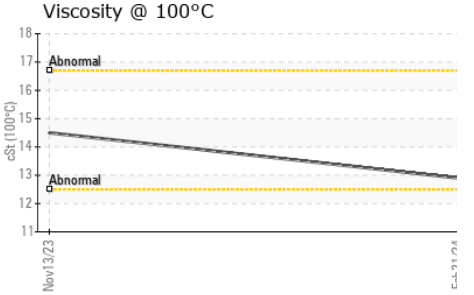
Non-ferrous Metals



Base Number



Viscosity @ 100°C

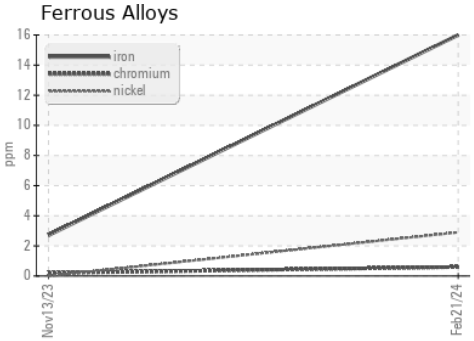


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	---
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	---
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	---
Silt	scalar	*Visual	NONE	**NONE**	NONE	---
Debris	scalar	*Visual	NONE	**NONE**	LIGHT	---
Sand/Dirt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

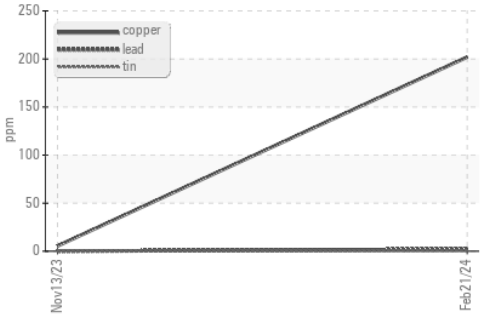
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		**12.9**	14.5	---

GRAPHS

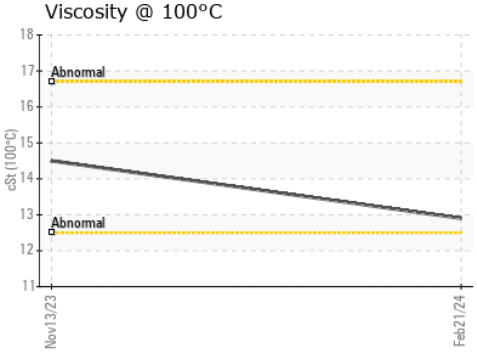
Ferrous Alloys



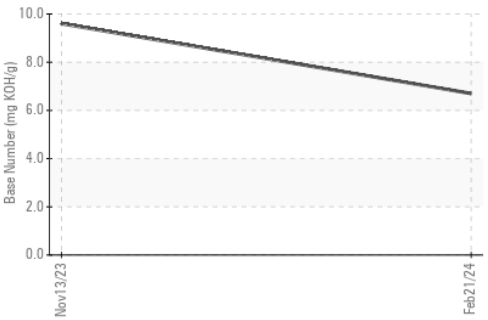
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0061435
Lab Number : 06098982
Unique Number : 10897212
Test Package : FLEET

Received : 23 Feb 2024
Tested : 26 Feb 2024
Diagnosed : 26 Feb 2024 - Don Baldridge

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)

GFL Environmental - 642- Grand Rapids Hauling
5826 Alden Nash Ave SE
Lowell, MI
US 49331
Contact: Chad Crosby
ccrosby@gflenv.com
T: (616)299-8425
F: