



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
(BA32040)
Machine Id
825052 MACK MRU613
Component
Diesel Engine
Fluid
TIER 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		GFL0115238	GFL0061442	GFL0061451
Sample Date		Client Info		20 May 2024	06 Nov 2023	21 Mar 2023
Machine Age	hrs	Client Info		14238	15719	15428
Oil Age	hrs	Client Info		9	600	600
Filter Age	hrs	Client Info		9	600	600
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>120	30	10	23
Chromium	ppm	ASTM D5185m	>20	1	0	<1
Nickel	ppm	ASTM D5185m	>5	<1	0	1
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	9	<1	2
Lead	ppm	ASTM D5185m	>40	2	3	0
Copper	ppm	ASTM D5185m	>330	2	<1	2
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

There is no indication of any contamination in the oil.

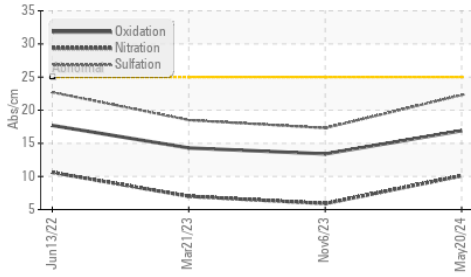
Silicon	ppm	ASTM D5185m	>25	9	2	7
Potassium	ppm	ASTM D5185m	>20	28	1	0
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>4	1.4	0.2	0.3
Nitration	Abs/cm	*ASTM D7624	>20	10.1	5.9	7.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.3	17.3	18.5
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

FLUID CONDITION

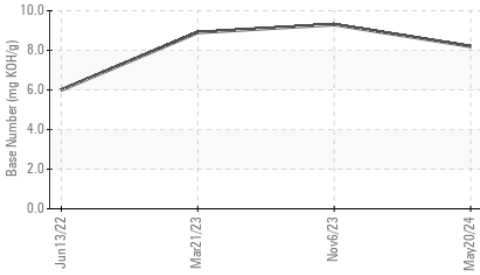
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		6	1	5
Boron	ppm	ASTM D5185m		6	7	8
Barium	ppm	ASTM D5185m		<1	0	0
Molybdenum	ppm	ASTM D5185m		57	54	65
Manganese	ppm	ASTM D5185m		<1	0	<1
Magnesium	ppm	ASTM D5185m		850	953	988
Calcium	ppm	ASTM D5185m		1091	1197	1137
Phosphorus	ppm	ASTM D5185m		1067	1109	1094
Zinc	ppm	ASTM D5185m		1222	1381	1298
Sulfur	ppm	ASTM D5185m		3343	3499	3609
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.9	13.4	14.3
Base Number (BN)	mg KOH/g	ASTM D2896		8.2	9.3	8.9
Visc @ 100°C	cSt	ASTM D445		13.0	13.5	13.3

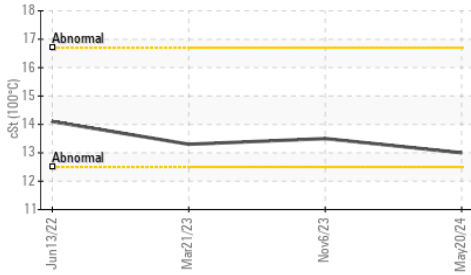
FT-IR (Direct Trend)



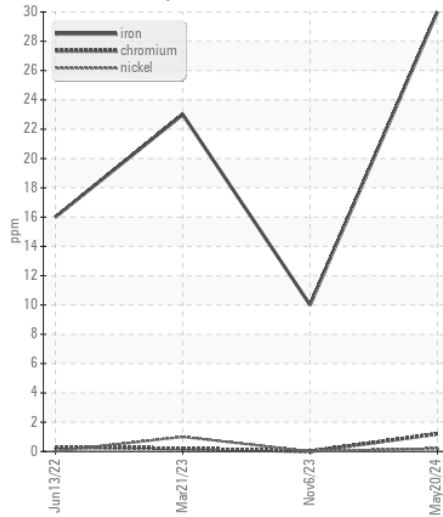
Base Number



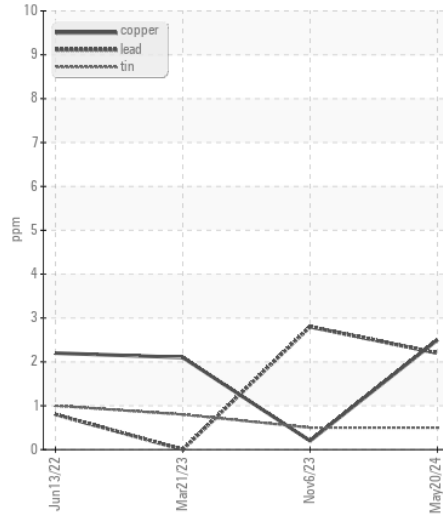
Viscosity @ 100°C



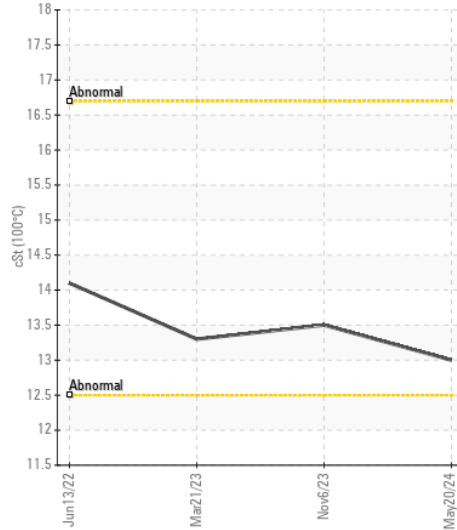
Ferrous Alloys



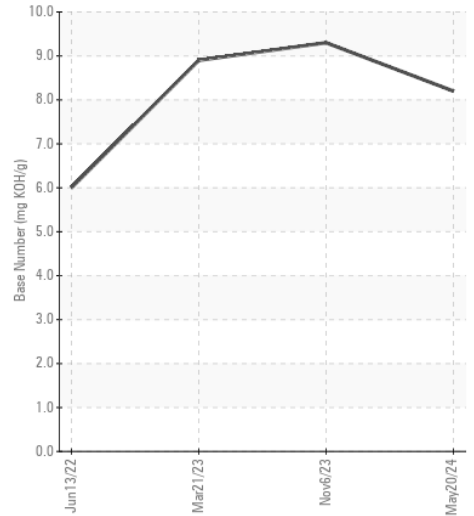
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0115238
Lab Number : 06189988
Unique Number : 11046740
Test Package : FLEET

Received : 23 May 2024
Tested : 31 May 2024
Diagnosed : 31 May 2024 - Sean Felton

GFL Environmental - 642- Grand Rapids Hauling
 5826 Alden Nash Ave SE
 Lowell, MI
 US 49331

Contact: BRITTANY FLINN
 bflinn@gflenv.com

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)

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