



# OIL ANALYSIS REPORT

WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>NORMAL</b>



Area  
**RMR-Louisvile**  
Machine Id  
**114199-1217 LIEBHERR LH60M 114199-1217**  
Component  
**Diesel Engine**  
Fluid  
**DIESEL ENGINE OIL SAE 5W30 (--- GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>DJJ0015455</b>	DJJ0017997	DJJ0011457
Sample Date		Client Info		<b>15 Apr 2024</b>	08 Mar 2023	03 Jan 2022
Machine Age	hrs	Client Info		<b>10230</b>	8152	5677
Oil Age	hrs	Client Info		<b>0</b>	0	0
Filter Age	hrs	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>13</b>	22	16
Chromium	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	<1
Nickel	ppm	ASTM D5185m	>5	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Silver	ppm	ASTM D5185m	>3	<b>&lt;1</b>	0	<1
Aluminum	ppm	ASTM D5185m	>15	<b>4</b>	3	2
Lead	ppm	ASTM D5185m	>30	<b>2</b>	0	<1
Copper	ppm	ASTM D5185m	>125	<b>24</b>	5	5
Tin	ppm	ASTM D5185m	>5	<b>1</b>	0	1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

There is no indication of any contamination in the oil.

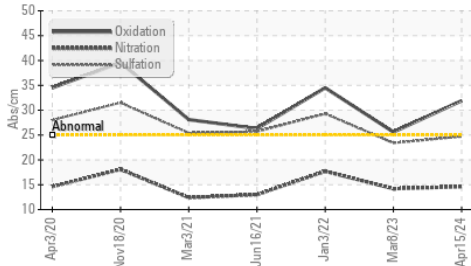
Silicon	ppm	ASTM D5185m	>60	<b>8</b>	6	9
Potassium	ppm	ASTM D5185m	>20	<b>12</b>	2	1
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.1</b>	0.2	0.3
Nitration	Abs/cm	*ASTM D7624	>20	<b>14.6</b>	14.2	17.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>24.7</b>	23.4	29.3
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG

## FLUID CONDITION

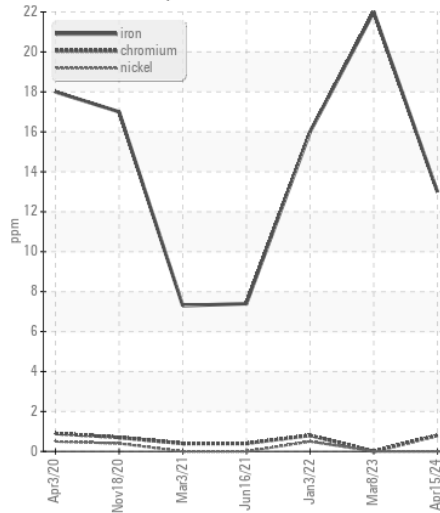
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<b>2</b>	2	5
Boron	ppm	ASTM D5185m	250	<b>62</b>	33	11
Barium	ppm	ASTM D5185m	10	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	100	<b>46</b>	42	61
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m	450	<b>825</b>	848	1103
Calcium	ppm	ASTM D5185m	3000	<b>1344</b>	1282	904
Phosphorus	ppm	ASTM D5185m	1150	<b>695</b>	564	1003
Zinc	ppm	ASTM D5185m	1350	<b>867</b>	835	1351
Sulfur	ppm	ASTM D5185m	4250	<b>2467</b>	2099	2846
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>31.9</b>	25.6	34.5
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	<b>5.4</b>	6.1	4.4
Visc @ 100°C	cSt	ASTM D445	10.9	<b>11.9</b>	11.3	12.7

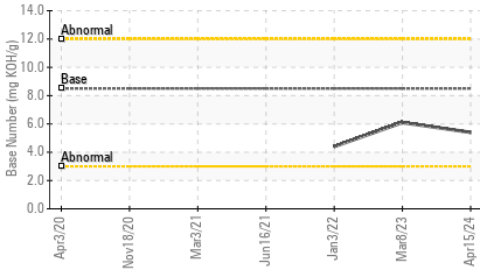
**FT-IR (Direct Trend)**



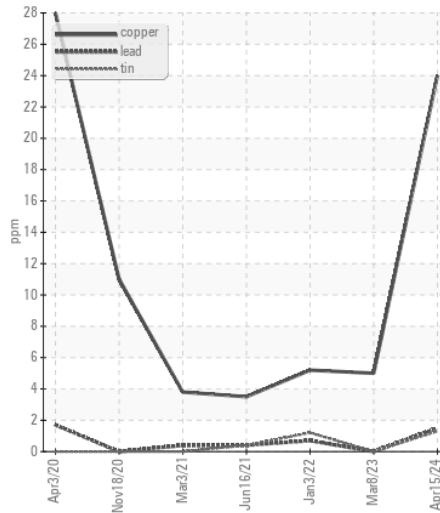
**Ferrous Alloys**



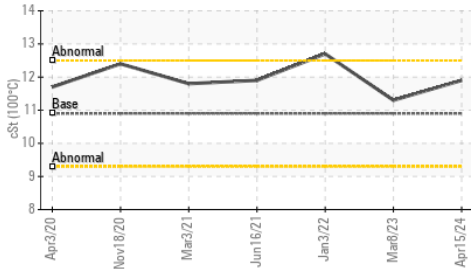
**Base Number**



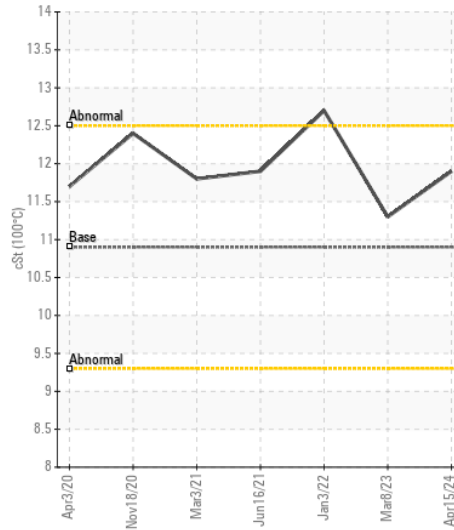
**Non-ferrous Metals**



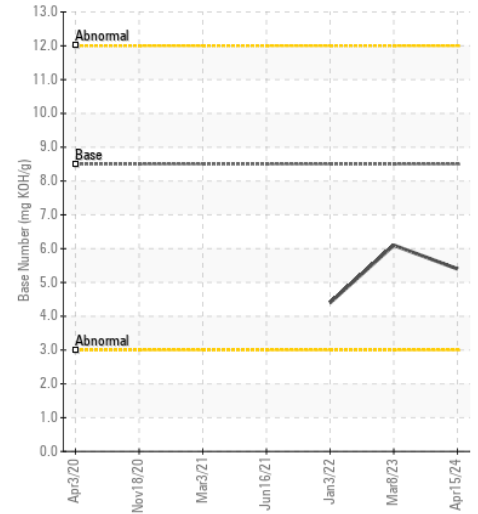
**Viscosity @ 100°C**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : DJJ0015455 **Received** : 19 Apr 2024  
**Lab Number** : 06154061 **Tested** : 22 Apr 2024  
**Unique Number** : 10989484 **Diagnosed** : 23 Apr 2024 - Don Baldrige  
**Test Package** : CONST ( Additional Tests: TBN )

**RIVER METALS RECYCLING - LOUISVILLE**  
 PO BOX 6521  
 LOUISVILLE, KY  
 US 40206  
 Contact: RYAN BOWDEN

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)

T:  
 F: (502)587-8699