



# OIL ANALYSIS REPORT

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

Machine Id  
**LIEBHERR LTM 1060 3.1 AT7822 (S/N 57822)**

Component  
**Diesel Engine**

Fluid  
**DIESEL ENGINE OIL 10W40 (--- GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>HPL0003796</b>	HPL0001559	HPL0001398
Sample Date		Client Info		<b>06 Jan 2024</b>	15 Nov 2022	13 Jul 2022
Machine Age	hrs	Client Info		<b>11527</b>	6329	70008
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>N/A</b>	N/A	N/A
Filter Changed		Client Info		<b>N/A</b>	N/A	N/A
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>8</b>	8	11
Chromium	ppm	ASTM D5185m	>5	<b>0</b>	<1	<1
Nickel	ppm	ASTM D5185m	>5	<b>0</b>	1	0
Titanium	ppm	ASTM D5185m		<b>0</b>	0	0
Silver	ppm	ASTM D5185m	>3	<b>0</b>	6	<1
Aluminum	ppm	ASTM D5185m	>15	<b>4</b>	0	3
Lead	ppm	ASTM D5185m	>30	<b>&lt;1</b>	12	<1
Copper	ppm	ASTM D5185m	>125	<b>2</b>	3	3
Tin	ppm	ASTM D5185m	>5	<b>0</b>	3	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

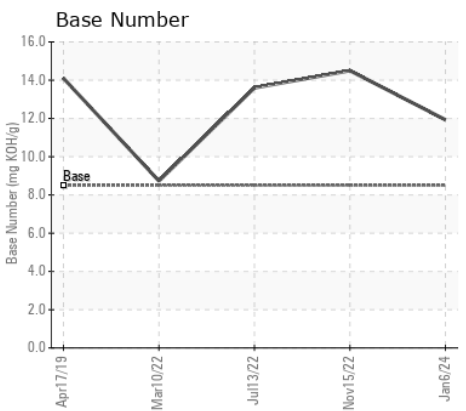
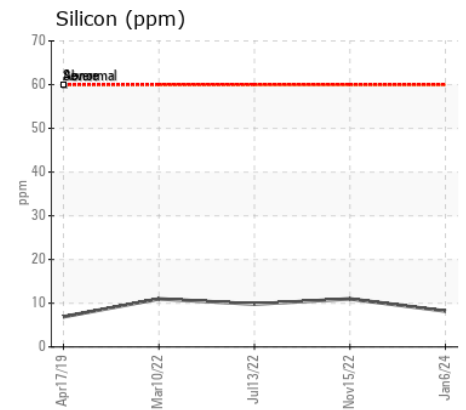
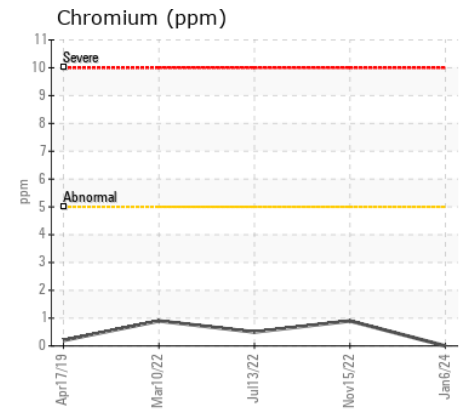
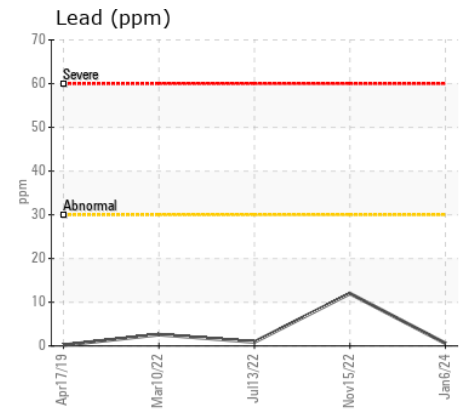
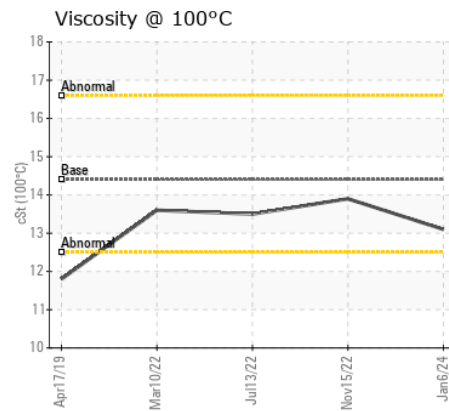
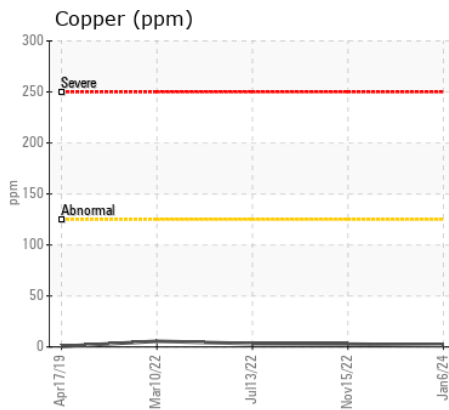
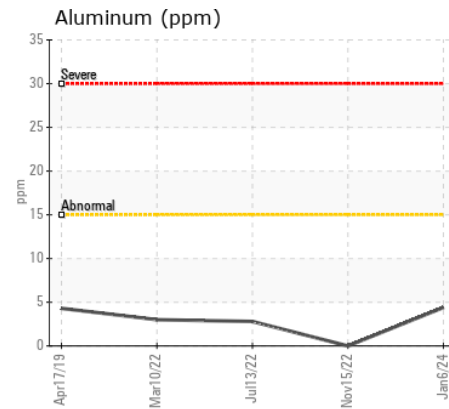
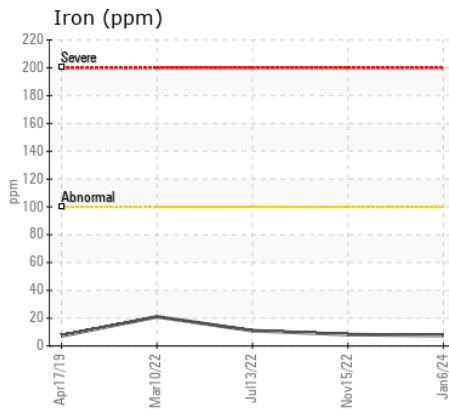
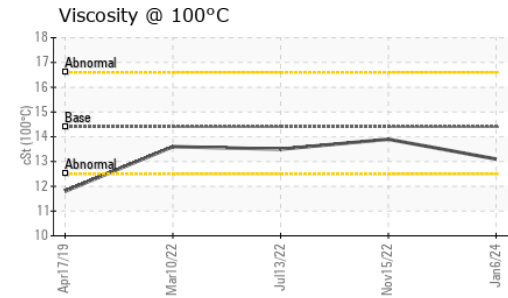
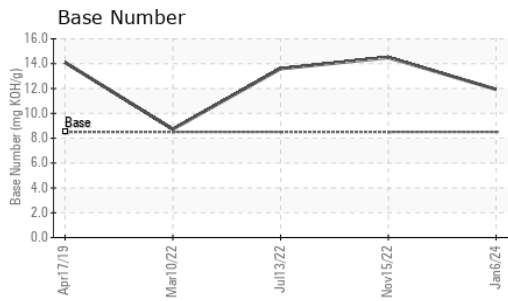
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>60	<b>8</b>	11	10
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	3	2
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>0.3</b>	0.3	0.4
Nitration	Abs/cm	*ASTM D7624	>20	<b>12.1</b>	9.6	10.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>36.8</b>	38.0	40.0
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>3</b>	0	1
Boron	ppm	ASTM D5185m	250	<b>5</b>	56	31
Barium	ppm	ASTM D5185m	10	<b>1</b>	0	0
Molybdenum	ppm	ASTM D5185m	100	<b>562</b>	521	637
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	<1
Magnesium	ppm	ASTM D5185m	450	<b>1006</b>	967	908
Calcium	ppm	ASTM D5185m	3000	<b>2536</b>	2524	2889
Phosphorus	ppm	ASTM D5185m	1150	<b>1091</b>	1041	1064
Zinc	ppm	ASTM D5185m	1350	<b>1263</b>	1113	1260
Sulfur	ppm	ASTM D5185m	4250	<b>8370</b>	13817	13032
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>40.1</b>	36.4	39.0
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	<b>11.93</b>	14.5	13.6
Visc @ 100°C	cSt	ASTM D445	14.4	<b>13.1</b>	13.9	13.5



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : HPL0003796 **Received** : 08 Jan 2024  
**Lab Number** : 06054154 **Diagnosed** : 09 Jan 2024  
**Unique Number** : 10820103 **Diagnostician** : Sean Felton  
**Test Package** : MOB 2

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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)