



# OIL ANALYSIS REPORT

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

Machine Id  
**LIEBHERR LTM1110 AT3324 (S/N 043324)**

Component  
**Diesel Engine**

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

## RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>HPL0004163</b>	HPL0003375	HPL008264
Sample Date		Client Info		<b>29 Jan 2024</b>	06 Jun 2023	08 Oct 2022
Machine Age	hrs	Client Info		<b>3887</b>	3116	2128
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>	14	8
Chromium	ppm	ASTM D5185m	>5	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m		<b>0</b>	0	0
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>15	<b>6</b>	2	2
Lead	ppm	ASTM D5185m	>30	<b>&lt;1</b>	1	1
Copper	ppm	ASTM D5185m	>125	<b>2</b>	4	3
Tin	ppm	ASTM D5185m	>5	<b>&lt;1</b>	<1	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

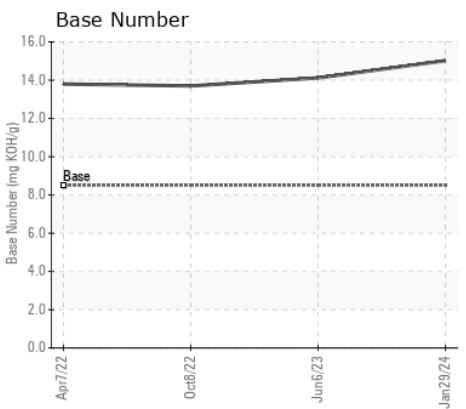
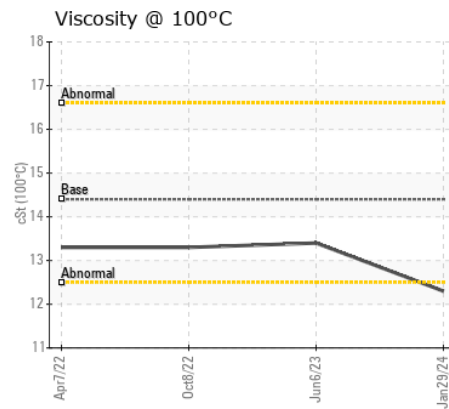
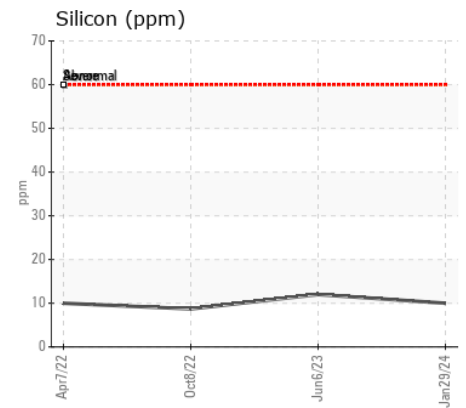
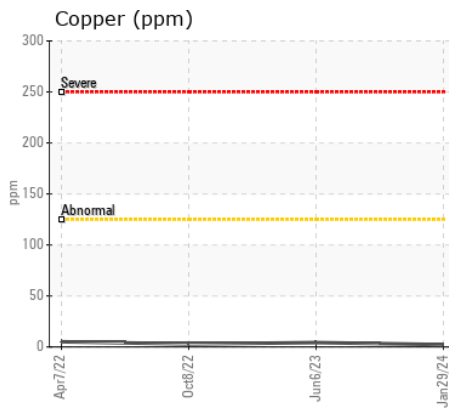
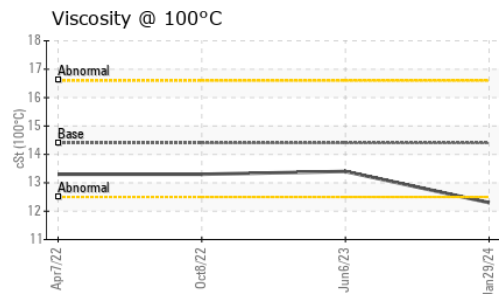
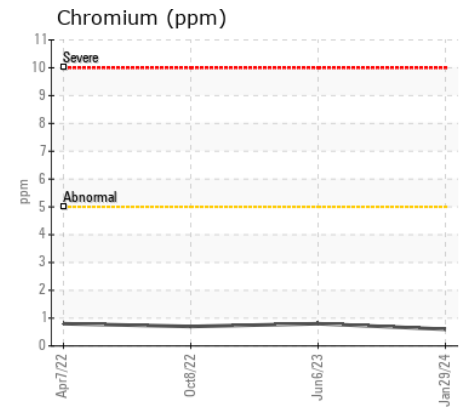
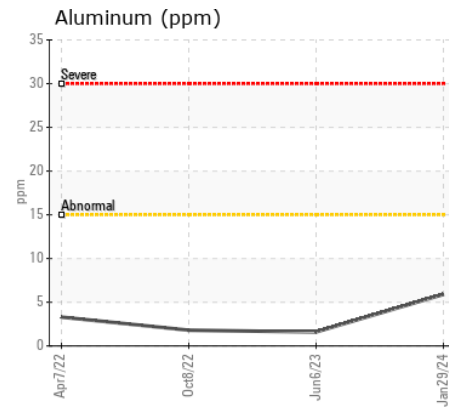
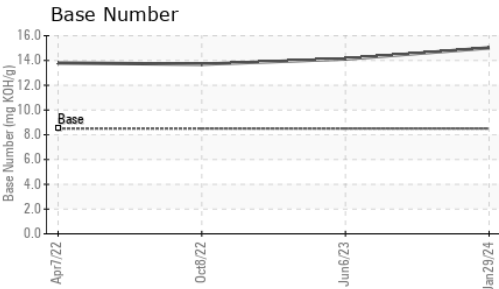
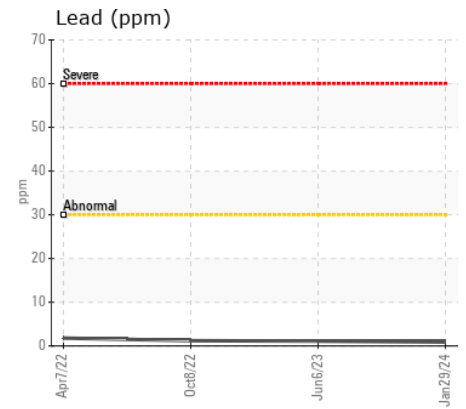
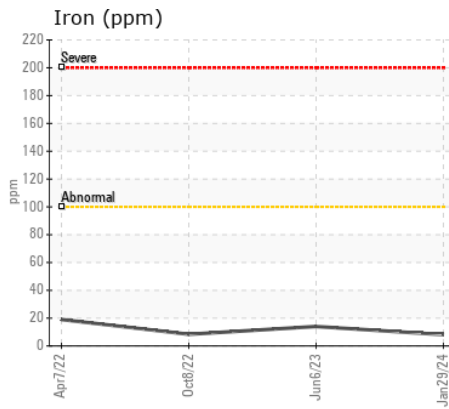
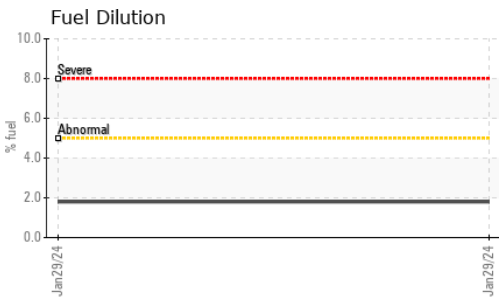
Fuel content negligible. There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>60	<b>10</b>	12	9
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	2	2
Fuel	%	ASTM D3524	>5	<b>1.8</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>	0.4	0.3
Nitration	Abs/cm	*ASTM D7624	>20	<b>12.3</b>	13.2	13.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>37.3</b>	37.6	40.3
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>0</b>	0	<1
Boron	ppm	ASTM D5185m	250	<b>&lt;1</b>	13	17
Barium	ppm	ASTM D5185m	10	<b>3</b>	2	5
Molybdenum	ppm	ASTM D5185m	100	<b>584</b>	777	561
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m	450	<b>961</b>	1164	849
Calcium	ppm	ASTM D5185m	3000	<b>2405</b>	3510	2672
Phosphorus	ppm	ASTM D5185m	1150	<b>1007</b>	1306	975
Zinc	ppm	ASTM D5185m	1350	<b>1235</b>	1589	1174
Sulfur	ppm	ASTM D5185m	4250	<b>8521</b>	12218	10652
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>40.2</b>	40.1	41.2
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	<b>15.02</b>	14.12	13.7
Visc @ 100°C	cSt	ASTM D445	14.4	<b>12.3</b>	13.4	13.3



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : HPL0004163 **Received** : 31 Jan 2024  
**Lab Number** : 06076028 **Diagnosed** : 02 Feb 2024  
**Unique Number** : 10858119 **Diagnostician** : Sean Felton  
**Test Package** : MOB 2 ( Additional Tests: FuelDilution, PercentFuel )

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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