LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
LIEBHERR LH50 1203-82019
Component
Diesel Engine
Fluid
LIEBHERR MOTOROIL 5W30 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

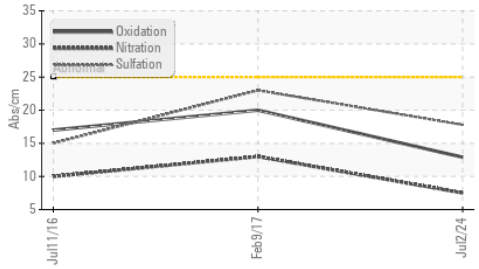
There is no indication of any contamination in the oil.

FLUID CONDITION

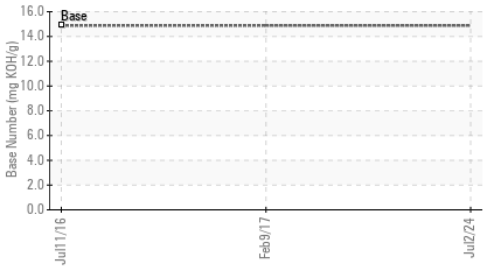
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LHMC132851	LHMC112872	LHMC80688
Sample Date		Client Info		02 Jul 2024	09 Feb 2017	11 Jul 2016
Machine Age	hrs	Client Info		94	2097	767
Oil Age	hrs	Client Info		94	500	767
Filter Age	hrs	Client Info		94	500	767
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ABNORMAL	ABNORMAL
Iron	ppm	ASTM D5185m	>66	11	▲ 97	84
Chromium	ppm	ASTM D5185m	>4	0	3	2
Nickel	ppm	ASTM D5185m	>4	<1	1	1
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>8	2	▲ 42	24
Lead	ppm	ASTM D5185m	>10	2	22	16
Copper	ppm	ASTM D5185m	>74	17	69	▲ 183
Tin	ppm	ASTM D5185m	>4	2	2	7
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>15	12	10	12
Potassium	ppm	ASTM D5185m	>20	15	4	3
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.1	1.1	0.5
Nitration	Abs/cm	*ASTM D7624	>20	7.5	13.	10.
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.8	23.	15.
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
Sodium	ppm	ASTM D5185m		5	7	16
Boron	ppm	ASTM D5185m	236	75	3	4
Barium	ppm	ASTM D5185m	0	7	4	27
Molybdenum	ppm	ASTM D5185m	0	3	6	10
Manganese	ppm	ASTM D5185m	<1	1	2	3
Magnesium	ppm	ASTM D5185m	25	713	88	143
Calcium	ppm	ASTM D5185m	4298	1451	2202	2012
Phosphorus	ppm	ASTM D5185m	1020	791	662	590
Zinc	ppm	ASTM D5185m	1164	868	801	777
Sulfur	ppm	ASTM D5185m	2460	3950	1088	2102
Oxidation	Abs/.1mm	*ASTM D7414	>25	12.9	20.	17.
Base Number (BN)	mg KOH/g	ASTM D2896	14.88	9.1	---	---
Visc @ 100°C	cSt	ASTM D445	12.1	11.5	14.04	14.00

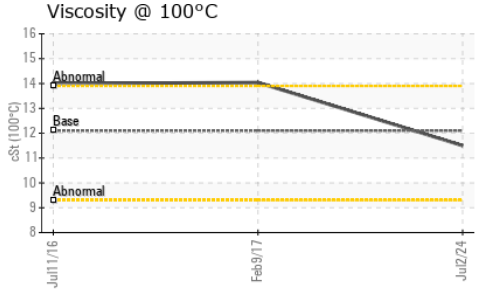
FT-IR (Direct Trend)



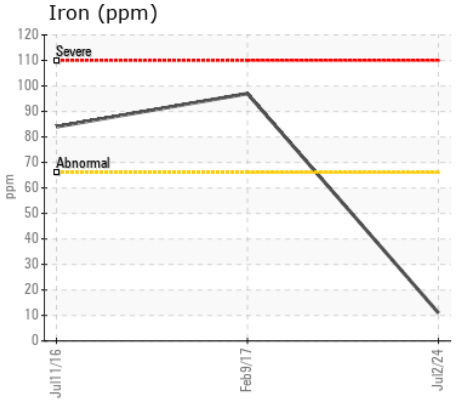
Base Number



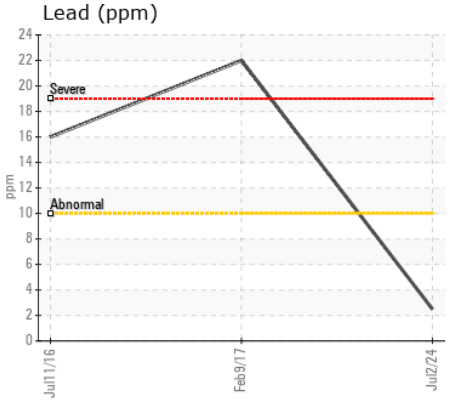
Viscosity @ 100°C



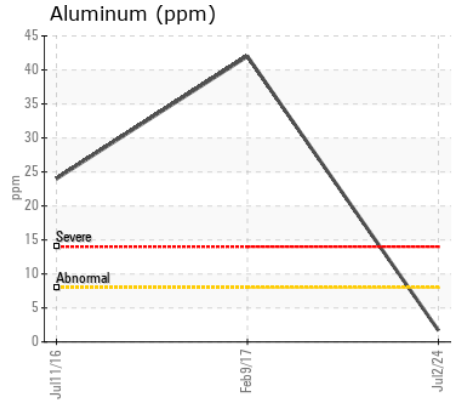
Iron (ppm)



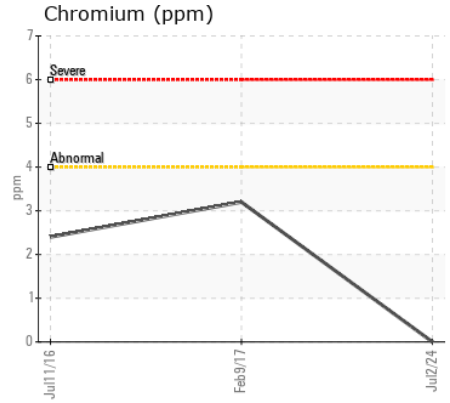
Lead (ppm)



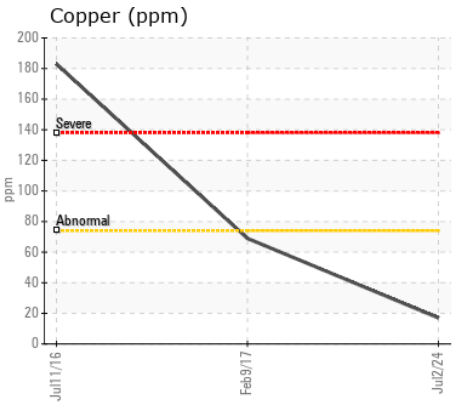
Aluminum (ppm)



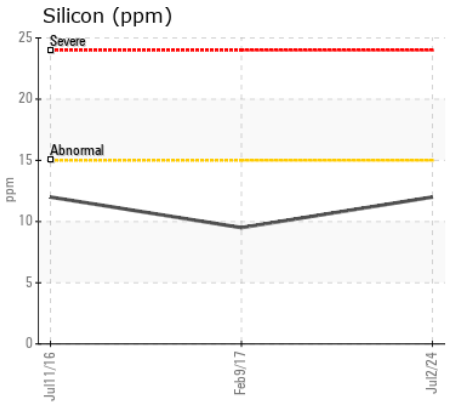
Chromium (ppm)



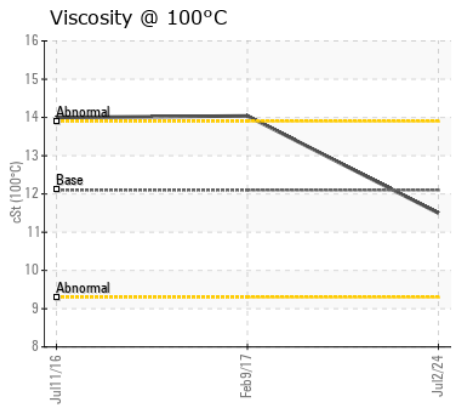
Copper (ppm)



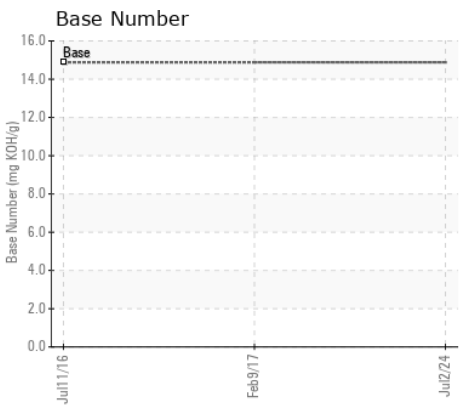
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LHMC132851 **Received** : 15 Jul 2024
Lab Number : 06237231 **Tested** : 17 Jul 2024
Unique Number : 11126065 **Diagnosed** : 17 Jul 2024 - Don Baldridge
Test Package : MOBCE (Additional Tests: TBN)

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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