



LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR LH50 114410-1216
Component
Diesel Engine
Fluid
LIEBHERR MOTOROIL 5W30 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0268379	LH0244114	LHMC50217
Sample Date		Client Info		11 Jun 2024	06 Jun 2023	05 Jul 2022
Machine Age	hrs	Client Info		6530	4573	2990
Oil Age	hrs	Client Info		0	0	1019
Filter Age	hrs	Client Info		0	0	1019
Oil Changed		Client Info		Changed	Not Changd	Not Changd
Filter Changed		Client Info		Changed	N/A	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>66	10	5	22
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	1	<1
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>3	0	<1	1
Aluminum	ppm	ASTM D5185m	>8	3	3	10
Lead	ppm	ASTM D5185m	>10	<1	1	4
Copper	ppm	ASTM D5185m	>74	8	2	31
Tin	ppm	ASTM D5185m	>4	0	<1	2
Vanadium	ppm	ASTM D5185m		0	<1	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.

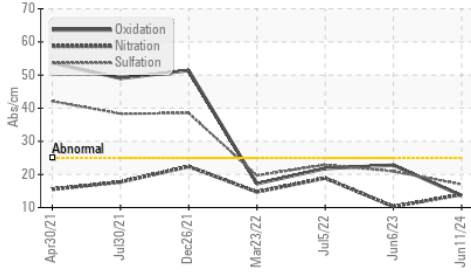
Silicon	ppm	ASTM D5185m	>15	9	6	9
Potassium	ppm	ASTM D5185m	>20	4	6	16
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.1	0.1	0.2
Nitration	Abs/cm	*ASTM D7624	>20	13.9	10.3	18.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.0	20.9	22.9
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

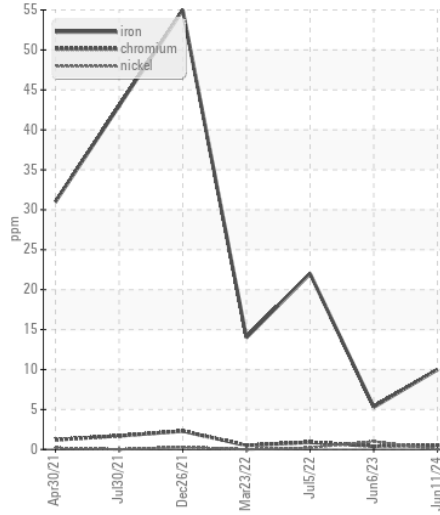
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<1	2	2
Boron	ppm	ASTM D5185m	236	225	134	224
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	0	6	2	4
Manganese	ppm	ASTM D5185m	<1	<1	<1	<1
Magnesium	ppm	ASTM D5185m	25	91	815	80
Calcium	ppm	ASTM D5185m	4298	4305	1636	4507
Phosphorus	ppm	ASTM D5185m	1020	1008	843	997
Zinc	ppm	ASTM D5185m	1164	1225	1009	1182
Sulfur	ppm	ASTM D5185m	2460	2807	4407	3160
Oxidation	Abs/.1mm	*ASTM D7414	>25	13.6	22.8	21.8
Base Number (BN)	mg KOH/g	ASTM D2896	14.88	14.0	7.5	11.7
Visc @ 100°C	cSt	ASTM D445	12.1	11.6	13.1	11.0

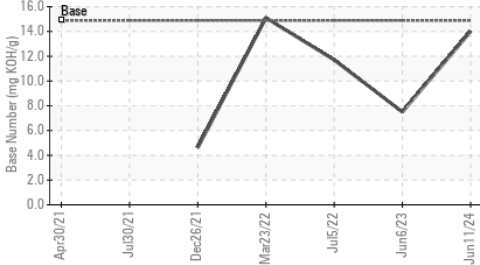
FT-IR (Direct Trend)



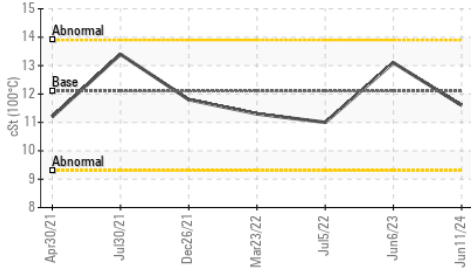
Ferrous Alloys



Base Number



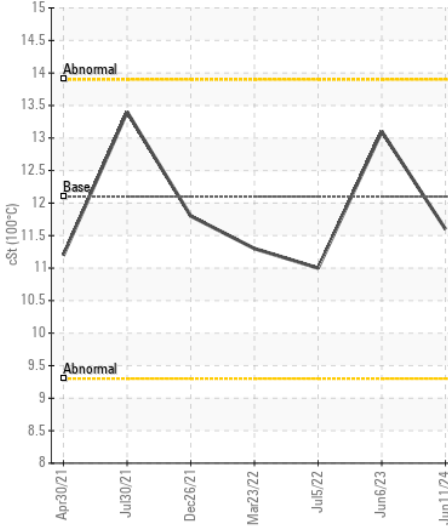
Viscosity @ 100°C



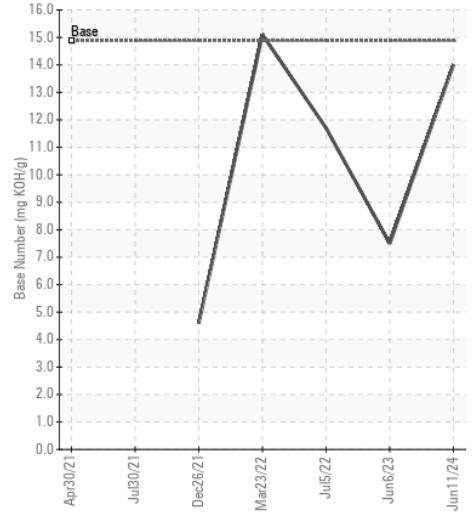
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LH0268379 **Received** : 21 Jun 2024
Lab Number : 06216549 **Tested** : 24 Jun 2024
Unique Number : 11089413 **Diagnosed** : 24 Jun 2024 - Wes Davis
Test Package : CONST (Additional Tests: TBN)

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 BRIGHTON, MI
 US 48116
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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)