CONST

LIEBHERR

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
LIEBHERR LH30 119194-1253
Component
Diesel Engine
Fluid
LIEBHERR MOTOROIL 5W-30 LOW ASH (--- GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. We recommend an early resample to monitor this condition.

WEAR

Bearing and/or bushing wear is indicated.

CONTAMINATION

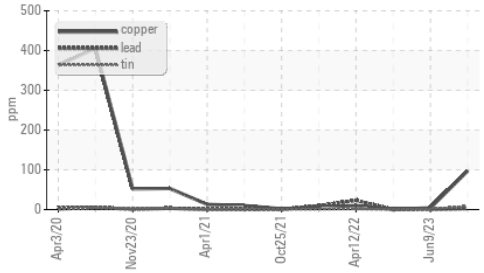
There is no indication of any contamination in the oil.

FLUID CONDITION

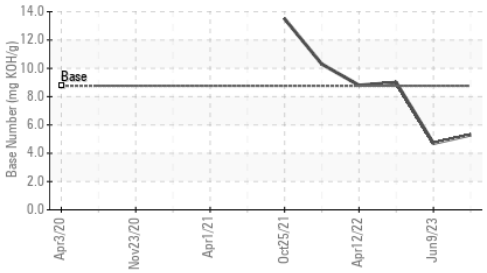
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0243133	LH0243135	LH0229305
Sample Date		Client Info		11 Jan 2024	09 Jun 2023	07 Nov 2022
Machine Age	hrs	Client Info		7279	6258	5125
Oil Age	hrs	Client Info		1021	1039	1052
Filter Age	hrs	Client Info		1021	1039	1052
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL
Iron	ppm	ASTM D5185m	>66	4	6	3
Chromium	ppm	ASTM D5185m	>4	0	0	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>8	<1	1	0
Lead	ppm	ASTM D5185m	>10	3	<1	<1
Copper	ppm	ASTM D5185m	>74	▲ 97	4	1
Tin	ppm	ASTM D5185m	>4	▲ 9	1	<1
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	7	8	7
Potassium	ppm	ASTM D5185m	>20	<1	<1	4
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	0.6
Nitration	Abs/cm	*ASTM D7624	>20	10.5	12.1	8.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.6	23.8	21.4
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		4	4	1
Boron	ppm	ASTM D5185m	2	31	35	81
Barium	ppm	ASTM D5185m	0	0	<1	0
Molybdenum	ppm	ASTM D5185m	<1	0	0	<1
Manganese	ppm	ASTM D5185m	<1	<1	<1	<1
Magnesium	ppm	ASTM D5185m	12	624	628	573
Calcium	ppm	ASTM D5185m	2224	1197	1209	1434
Phosphorus	ppm	ASTM D5185m	635	633	649	689
Zinc	ppm	ASTM D5185m	718	649	669	817
Sulfur	ppm	ASTM D5185m	1694	2380	2482	2696
Oxidation	Abs/.1mm	*ASTM D7414	>25	19.2	21.2	17.7
Base Number (BN)	mg KOH/g	ASTM D2896	8.76	5.3	4.7	9.0
Visc @ 100°C	cSt	ASTM D445	12.0	10.9	11.4	12.1

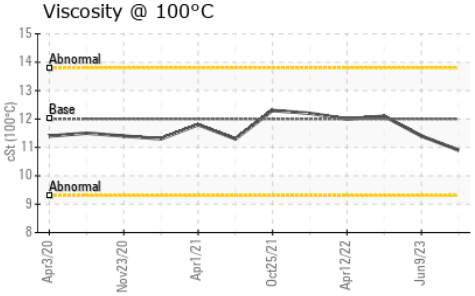
Non-ferrous Metals



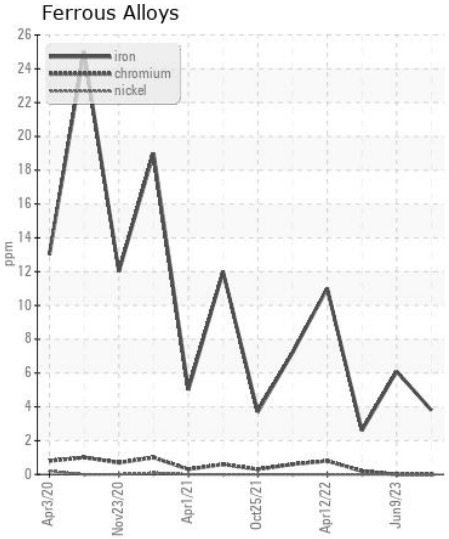
Base Number



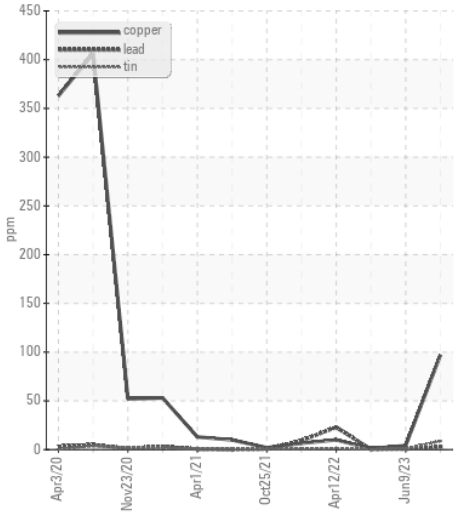
Viscosity @ 100°C



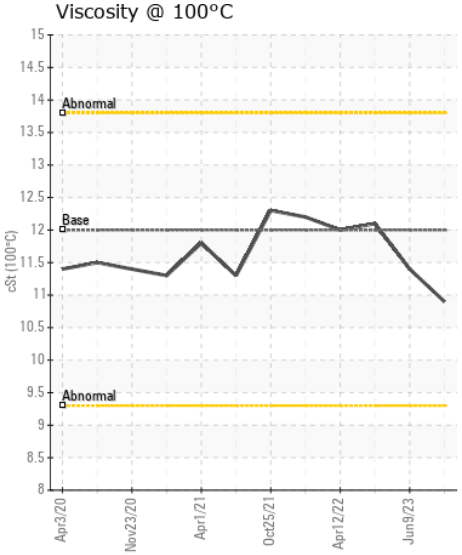
Ferrous Alloys



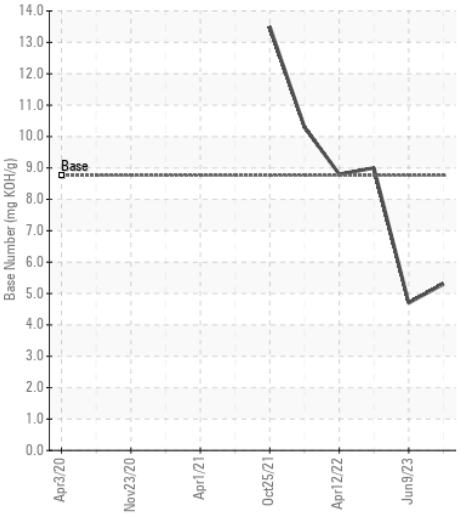
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LH0243133
Lab Number : 06098235
Unique Number : 10896465
Test Package : CONST (Additional Tests: TBN)

Received : 23 Feb 2024
Tested : 26 Feb 2024
Diagnosed : 26 Feb 2024 - Don Baldridge

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)

TIMBER PRODUCTS
11256 E STATE HWY M28
MUNISING, MI
US 49862
Contact: RICH ALDRICH
raldrich@timberproducts.com
T: (906)452-7013
F: