



LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR L586 052323-1334
Component
Diesel Engine
Fluid
LIEBHERR MOTOROIL 5W-30 LOW ASH (40 LTR)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0272205	LH0229249	LH0217554
Sample Date		Client Info		17 May 2024	07 Mar 2023	12 Jun 2022
Machine Age	hrs	Client Info		12782	9828	8089
Oil Age	hrs	Client Info		2000	2000	1000
Filter Age	hrs	Client Info		2000	2000	1000
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	6	14	8
Chromium	ppm	ASTM D5185m	>5	0	1	<1
Nickel	ppm	ASTM D5185m	>5	0	0	0
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>15	3	<1	2
Lead	ppm	ASTM D5185m	>30	1	<1	<1
Copper	ppm	ASTM D5185m	>125	<1	2	2
Tin	ppm	ASTM D5185m	>5	<1	<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

CONTAMINATION

There is no indication of any contamination in the oil.

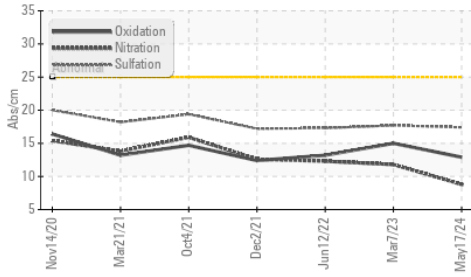
Silicon	ppm	ASTM D5185m	>60	6	7	7
Potassium	ppm	ASTM D5185m	>20	3	4	4
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	8.8	11.8	12.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.4	17.7	17.3
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

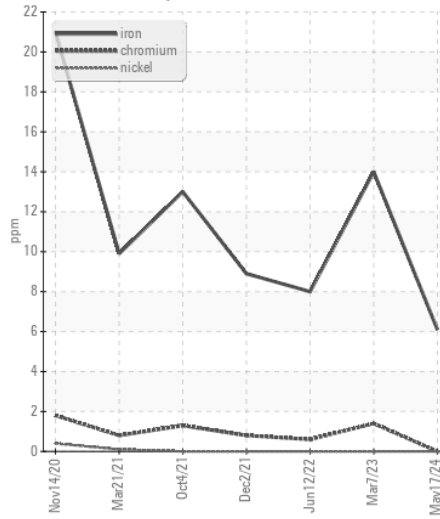
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<1	0	2
Boron	ppm	ASTM D5185m	2	79	180	267
Barium	ppm	ASTM D5185m	0	0	2	0
Molybdenum	ppm	ASTM D5185m	<1	73	17	3
Manganese	ppm	ASTM D5185m	<1	<1	<1	<1
Magnesium	ppm	ASTM D5185m	12	55	48	35
Calcium	ppm	ASTM D5185m	2224	2344	3415	3906
Phosphorus	ppm	ASTM D5185m	635	1022	1000	1035
Zinc	ppm	ASTM D5185m	718	1188	1181	1223
Sulfur	ppm	ASTM D5185m	1694	4066	3279	3094
Oxidation	Abs/.1mm	*ASTM D7414	>25	12.9	15.0	13.2
Base Number (BN)	mg KOH/g	ASTM D2896	8.76	7.0	8.3	11.8
Visc @ 100°C	cSt	ASTM D445	12.0	13.3	12.1	11.5

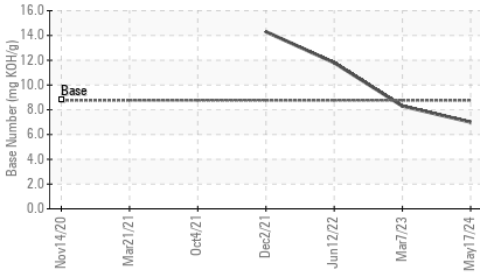
FT-IR (Direct Trend)



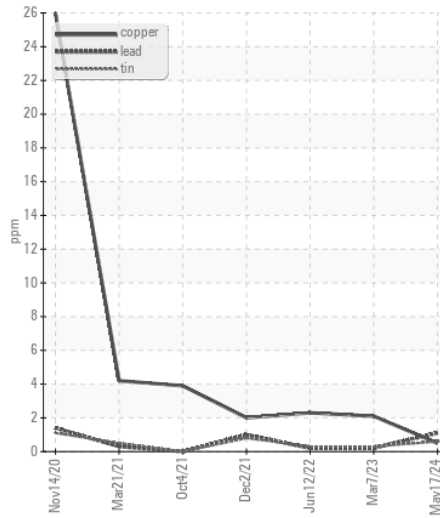
Ferrous Alloys



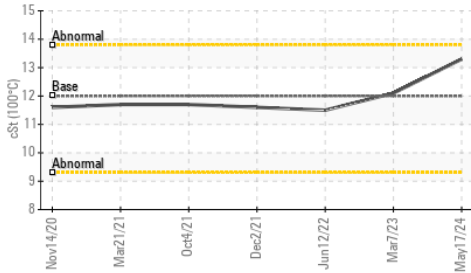
Base Number



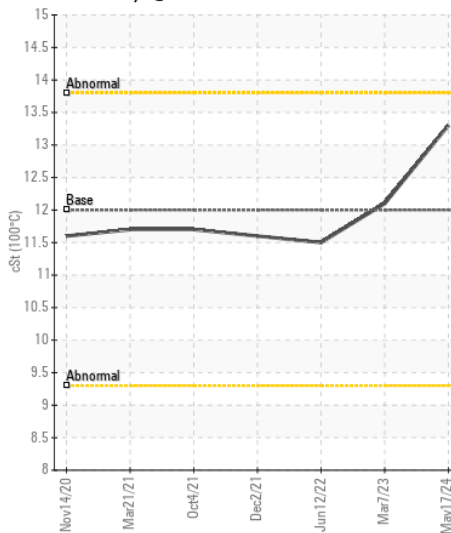
Non-ferrous Metals



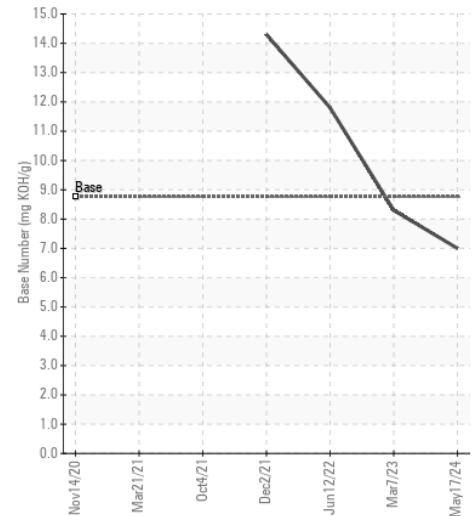
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LH0272205 **Received** : 21 May 2024
Lab Number : 06187018 **Tested** : 23 May 2024
Unique Number : 11043770 **Diagnosed** : 23 May 2024 - Sean Felton
Test Package : CONST (Additional Tests: TBN)

BENEVENTO SAND & STONE
 900 SALEM STREET PO Box 454
 WILMINGTON, MA
 US 01887
 Contact: Service Manager

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)

T:
 F: (978)658-8928