CONST

LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ATTENTION

Machine Id
LIEBHERR LH50 1216-118499
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (--- GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

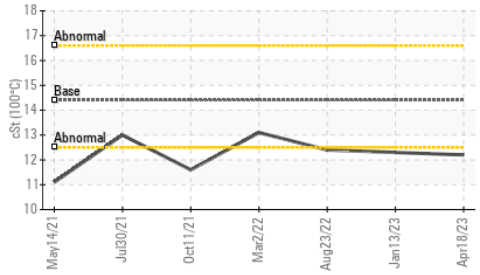
There is no indication of any contamination in the oil.

FLUID CONDITION

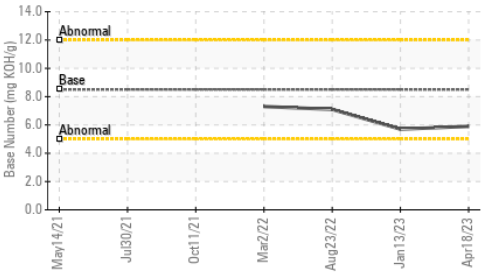
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0244193	LH0236677	LH0236505
Sample Date		Client Info		18 Apr 2023	13 Jan 2023	23 Aug 2022
Machine Age	hrs	Client Info		5488	4897	4046
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ATTENTION	ATTENTION	ATTENTION
Iron	ppm	ASTM D5185m	>66	4	8	7
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		33	69	14
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>8	<1	<1	3
Lead	ppm	ASTM D5185m	>10	0	<1	3
Copper	ppm	ASTM D5185m	>74	2	7	13
Tin	ppm	ASTM D5185m	>4	0	0	<1
Vanadium	ppm	ASTM D5185m		<1	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>15	6	8	10
Potassium	ppm	ASTM D5185m	>20	<1	0	4
Fuel	%	ASTM D3524	>5	<1.0	<1.0	1.1
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	8.3	9.5	10.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.1	23.2	22.1
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	>158	1	<1	3
Boron	ppm	ASTM D5185m	250	29	45	45
Barium	ppm	ASTM D5185m	10	0	0	1
Molybdenum	ppm	ASTM D5185m	100	26	5	8
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	450	606	626	613
Calcium	ppm	ASTM D5185m	3000	921	1303	1322
Phosphorus	ppm	ASTM D5185m	1150	758	820	737
Zinc	ppm	ASTM D5185m	1350	858	992	858
Sulfur	ppm	ASTM D5185m	4250	3077	3629	3007
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.9	18.1	16.5
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	5.9	5.7	7.1
Visc @ 100°C	cSt	ASTM D445	14.4	▲ 12.2	▲ 12.3	▲ 12.4

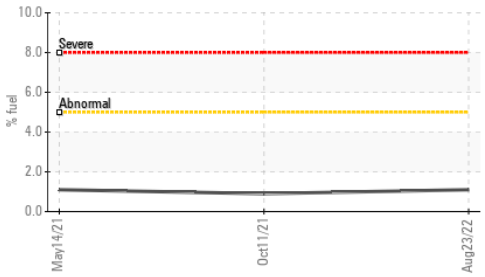
Viscosity @ 100°C



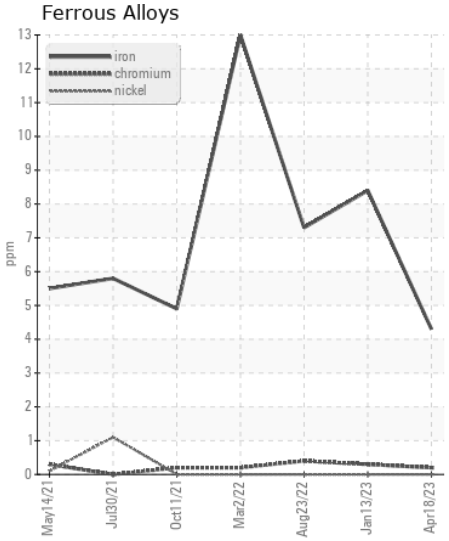
Base Number



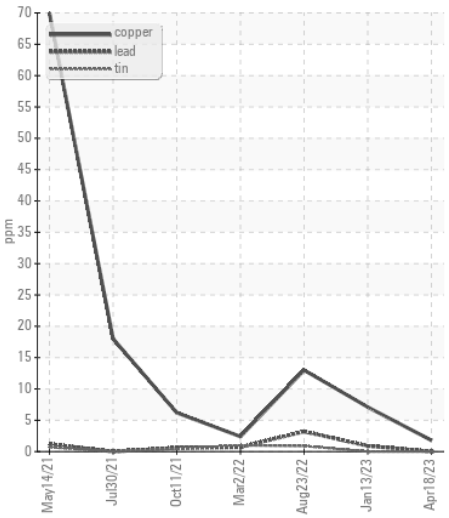
Fuel Dilution



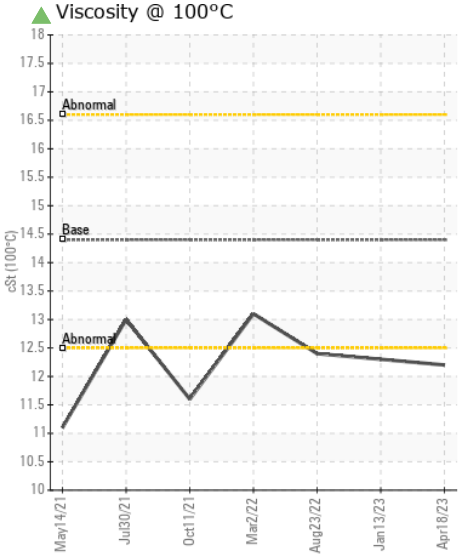
Ferrous Alloys



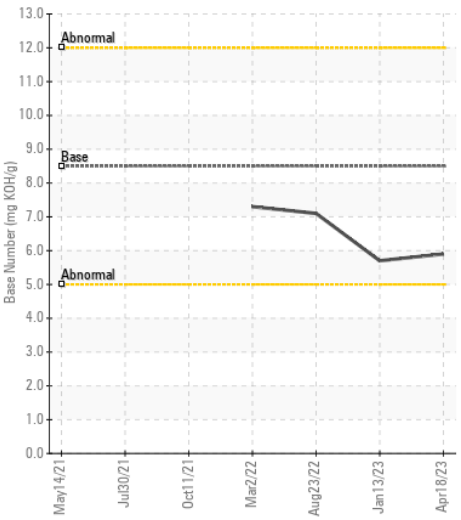
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LH0244193 **Received** : 24 Apr 2023
Lab Number : 05827278 **Tested** : 26 Apr 2023
Unique Number : 10440771 **Diagnosed** : 26 Apr 2023 - Don Baldridge
Test Package : CONST (Additional Tests: FuelDilution, 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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