



LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR L586 052323-1334
Component
Hydraulic System
Fluid
LIEBHERR HYDRAULIC HVI (100 LTR)

RECOMMENDATION

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

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0272203	LH0229251	LH0229183
Sample Date		Client Info		17 May 2024	07 Mar 2023	11 Oct 2022
Machine Age	hrs	Client Info		12782	9828	9071
Oil Age	hrs	Client Info		6000	9828	9071
Filter Age	hrs	Client Info		1000	0	1000
Oil Changed		Client Info		Changed	Changed	Filtered
Filter Changed		Client Info		Changed	N/A	Changed
Sample Status				ABNORMAL	NORMAL	ATTENTION

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>50	20	11	15
Chromium	ppm	ASTM D5185m	>5	1	<1	1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m		1	<1	<1
Silver	ppm	ASTM D5185m		<1	0	0
Aluminum	ppm	ASTM D5185m	>5	8	4	7
Lead	ppm	ASTM D5185m	>15	5	2	8
Copper	ppm	ASTM D5185m	>10	3	2	3
Tin	ppm	ASTM D5185m	>2	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

Elemental level of silicon (Si) above normal. The amount and size of particulates present in the system are acceptable.

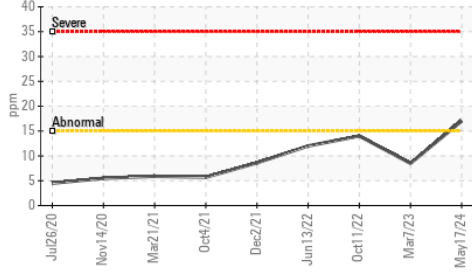
Silicon	ppm	ASTM D5185m	>15	▲ 17	8	14
Potassium	ppm	ASTM D5185m	>20	2	<1	3
Water		WC Method	>0.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>20000	5061	2858	● 29140
Particles >6µm		ASTM D7647	>5000	139	137	3057
Particles >14µm		ASTM D7647	>640	7	7	34
Particles >21µm		ASTM D7647	>160	2	2	4
Particles >38µm		ASTM D7647	>40	0	0	1
Particles >71µm		ASTM D7647	>10	0	0	1
Oil Cleanliness		ISO 4406 (c)	>21/19/16	20/14/10	19/14/10	● 22/19/12
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	>0.1	NEG	NEG	NEG

FLUID CONDITION

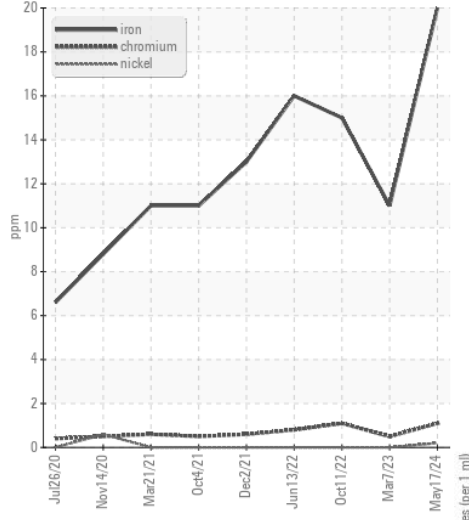
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		4	2	3
Boron	ppm	ASTM D5185m		12	11	18
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		2	2	4
Manganese	ppm	ASTM D5185m		<1	<1	1
Magnesium	ppm	ASTM D5185m	7	20	20	37
Calcium	ppm	ASTM D5185m	1500	1930	1781	2203
Phosphorus	ppm	ASTM D5185m	750	708	669	705
Zinc	ppm	ASTM D5185m	820	843	798	912
Sulfur	ppm	ASTM D5185m	4000	4756	5025	4578
Acid Number (AN)	mg KOH/g	ASTM D8045	1.2	0.79	0.78	0.69
Visc @ 40°C	cSt	ASTM D445	52	43.1	45.1	42.9

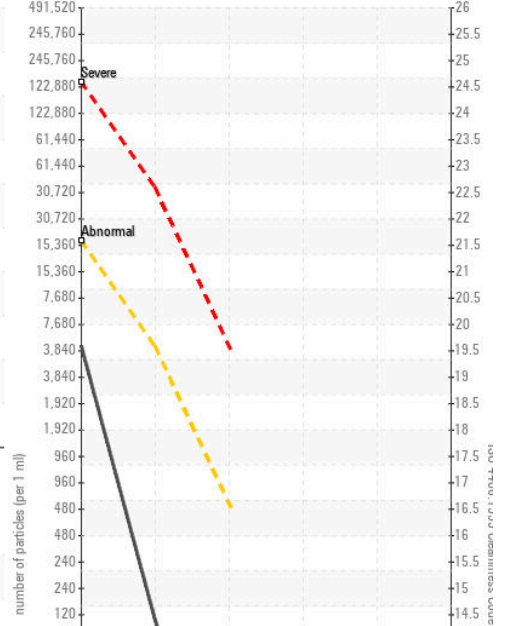
▲ Silicon (ppm)



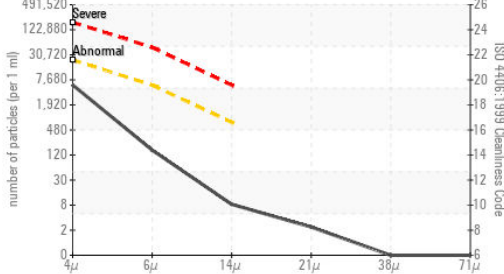
Ferrous Alloys



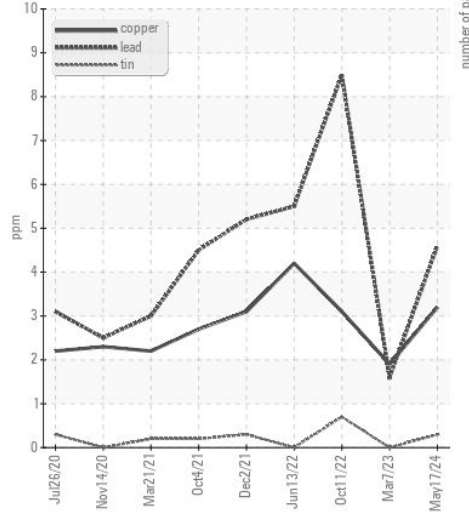
Particle Count



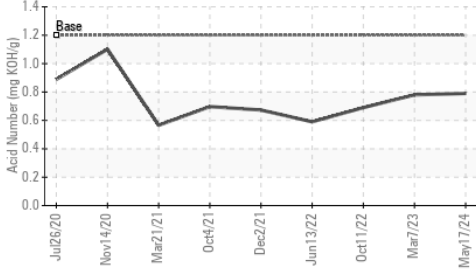
Particle Count



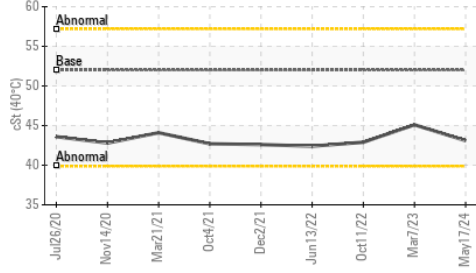
Non-ferrous Metals



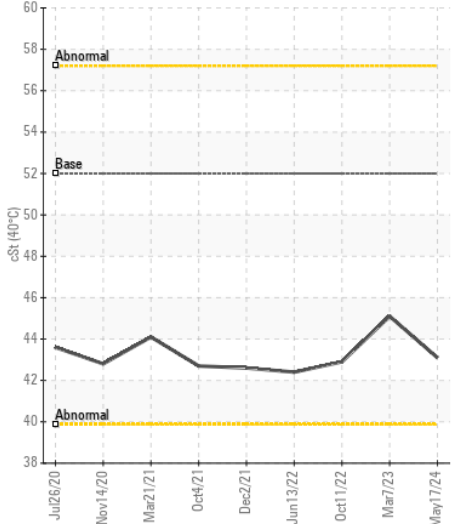
Acid Number



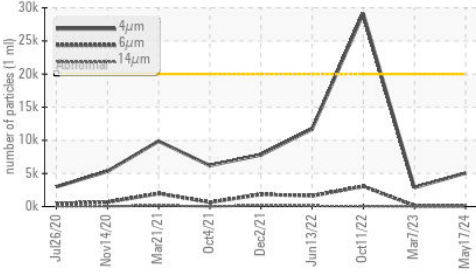
Viscosity @ 40°C



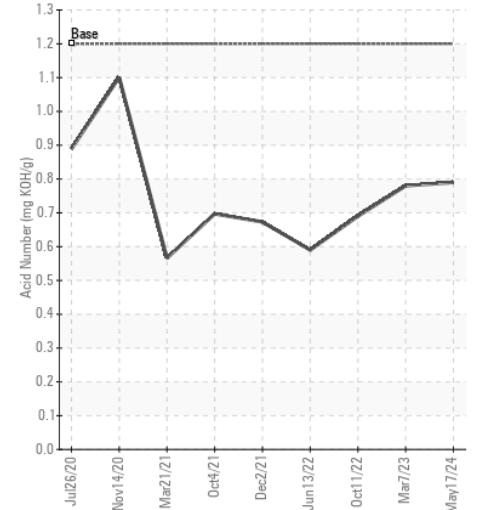
Viscosity @ 40°C



Particle Trend



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : LH0272203

Lab Number : 06186655

Unique Number : 11043407

Test Package : CONST

Received : 21 May 2024

Tested : 23 May 2024

Diagnosed : 23 May 2024 - Don Baldrige

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)

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