



LIEBHERR

OIL ANALYSIS REPORT



Area
[CLEVELAND CLIFF]
 Machine Id
LIEBHERR LH60M 119014-1217
 Component
Hydraulic System
 Fluid
LIEBHERR HYDRAULIC HVI (--- GAL)

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

RECOMMENDATION

No corrective action is recommended at this time. 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		LH0258926	---	---
Sample Date		Client Info		14 Mar 2024	---	---
Machine Age	hrs	Client Info		2268	---	---
Oil Age	hrs	Client Info		1000	---	---
Filter Age	hrs	Client Info		0	---	---
Oil Changed		Client Info		Changed	---	---
Filter Changed		Client Info		Changed	---	---
Sample Status				ABNORMAL	---	---

WEAR

The iron level is abnormal. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>60	▲ 72	---	---
Chromium	ppm	ASTM D5185m	>40	5	---	---
Nickel	ppm	ASTM D5185m	>10	1	---	---
Titanium	ppm	ASTM D5185m		<1	---	---
Silver	ppm	ASTM D5185m		0	---	---
Aluminum	ppm	ASTM D5185m	>5	1	---	---
Lead	ppm	ASTM D5185m	>5	2	---	---
Copper	ppm	ASTM D5185m	>15	7	---	---
Tin	ppm	ASTM D5185m	>5	1	---	---
Vanadium	ppm	ASTM D5185m		<1	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---

CONTAMINATION

There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

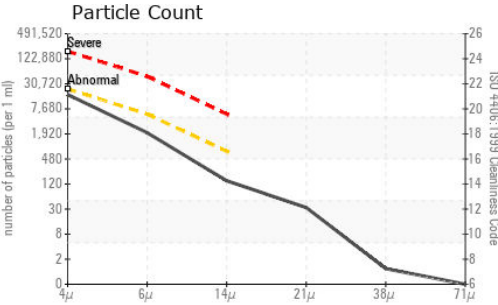
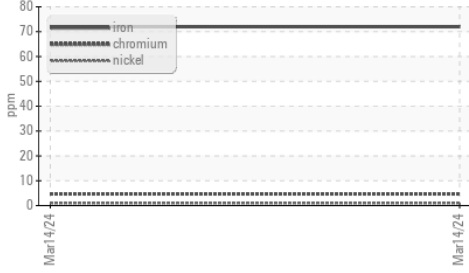
Silicon	ppm	ASTM D5185m	>15	4	---	---
Potassium	ppm	ASTM D5185m	>20	2	---	---
Water		WC Method	>0.1	NEG	---	---
Particles >4µm		ASTM D7647	>20000	14722	---	---
Particles >6µm		ASTM D7647	>5000	1791	---	---
Particles >14µm		ASTM D7647	>640	127	---	---
Particles >21µm		ASTM D7647	>160	29	---	---
Particles >38µm		ASTM D7647	>40	1	---	---
Particles >71µm		ASTM D7647	>10	0	---	---
Oil Cleanliness		ISO 4406 (c)	>21/19/16	21/18/14	---	---
Silt	scalar	*Visual	NONE	NONE	---	---
Debris	scalar	*Visual	NONE	NONE	---	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---	---
Appearance	scalar	*Visual	NORML	NORML	---	---
Odor	scalar	*Visual	NORML	NORML	---	---
Emulsified Water	scalar	*Visual	>0.1	NEG	---	---

FLUID CONDITION

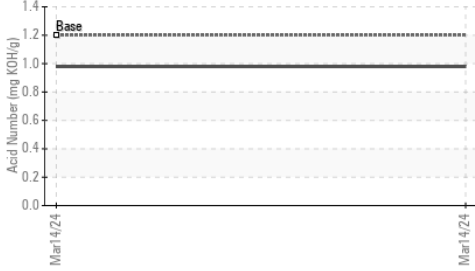
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		2	---	---
Boron	ppm	ASTM D5185m		9	---	---
Barium	ppm	ASTM D5185m		<1	---	---
Molybdenum	ppm	ASTM D5185m		2	---	---
Manganese	ppm	ASTM D5185m		2	---	---
Magnesium	ppm	ASTM D5185m	7	14	---	---
Calcium	ppm	ASTM D5185m	1500	1728	---	---
Phosphorus	ppm	ASTM D5185m	750	809	---	---
Zinc	ppm	ASTM D5185m	820	951	---	---
Sulfur	ppm	ASTM D5185m	4000	8024	---	---
Acid Number (AN)	mg KOH/g	ASTM D8045	1.2	0.98	---	---
Visc @ 40°C	cSt	ASTM D445	52	43.4	---	---

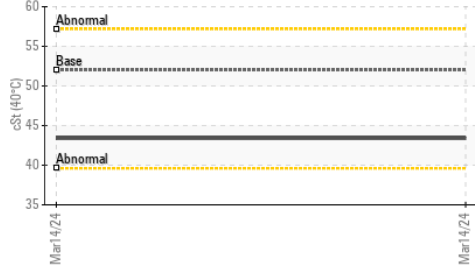
▲ Ferrous Alloys



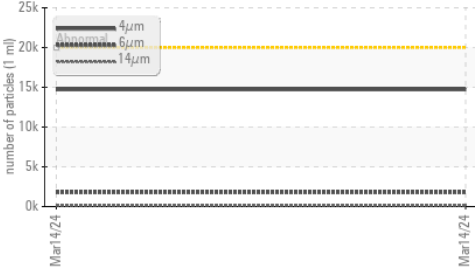
Acid Number



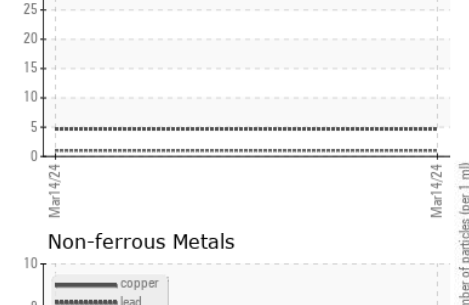
Viscosity @ 40°C



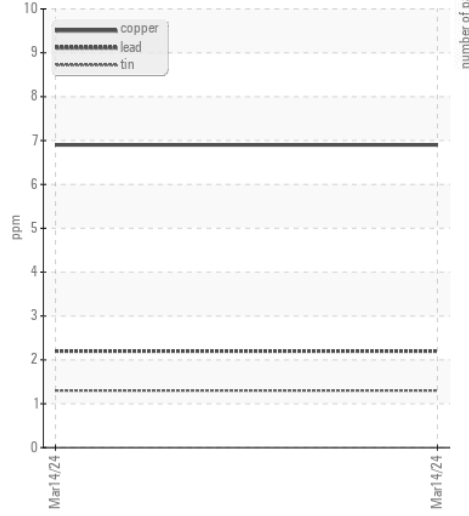
Particle Trend



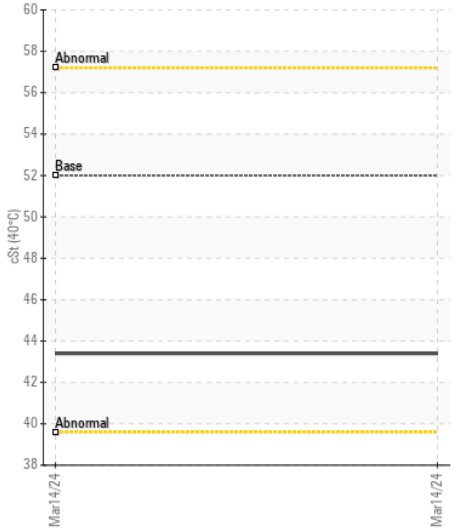
▲ Ferrous Alloys



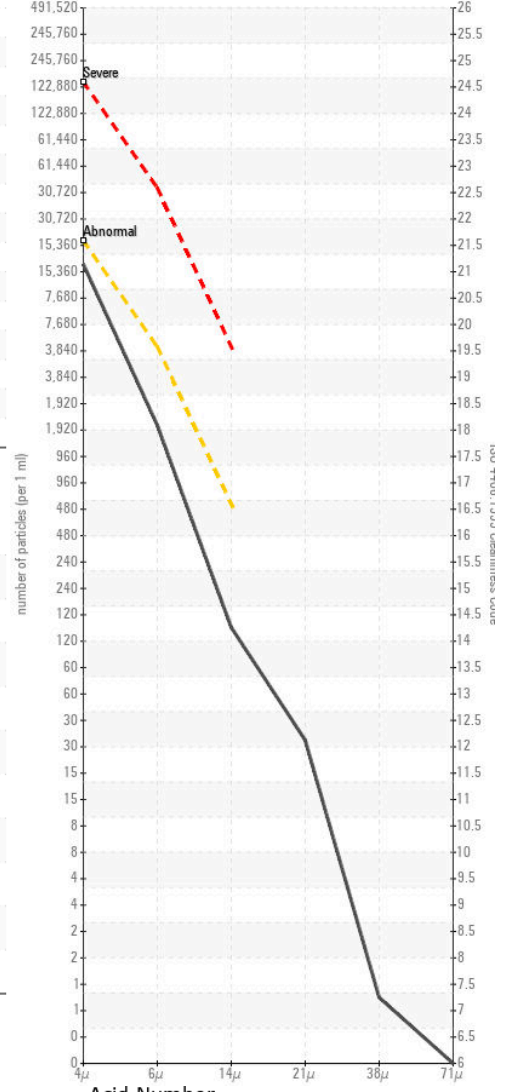
Non-ferrous Metals



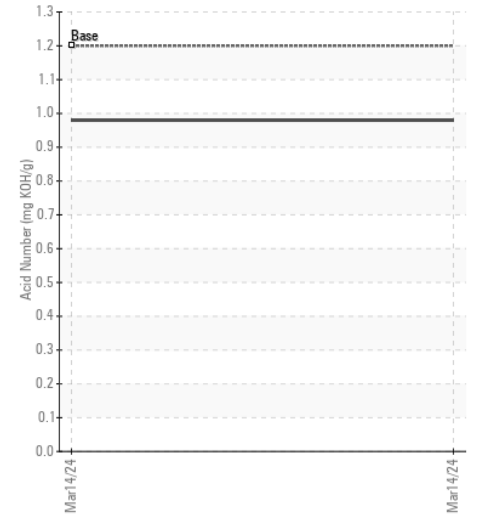
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LH0258926
Lab Number : 06146527
Unique Number : 10976605
Test Package : CONST

Received : 11 Apr 2024
Tested : 12 Apr 2024
Diagnosed : 15 Apr 2024 - Don Baldrige

FINKBINER EQUIPMENT CO.
 15 W 400 N FRONTAGE RD
 BURR RIDGE, IL
 US 60527

Contact: TROY MILLER
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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)