

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR R938 050294-1650 - Hydraulic System

Sample No: LH0172356

Oil Type: {unknown}



#### SAMPLE INFORMATION

Sample Number	LH0172356	LH0172347	LH0257074	LH0230894
Sample Date	03 Jan 2024	11 Jul 2023	21 Mar 2023	16 Sep 2022
Machine Hours	4931	4978	4098	3452
Oil Hours	0	0	0	0
Oil Changed	Not Changd	Not Changd	Not Changd	Not Changd
Sample Status	ABNORMAL	ABNORMAL	NORMAL	NORMAL

**MOOREFIELD EXCAVATING LTD.**  
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 Contact: John Landman  
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#### OIL CONDITION

Visc @ 40°C	cSt	48.3	40.7	40.9	41.2
Acid Number (AN)	mg KOH/g	0.97	1.21	---	---



#### CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Particles >4µm		3950	8127	10001	4994
Particles >6µm		854	1630	2736	1311
Particles >14µm		34	157	74	67
ISO 4406:1999 (c)		19/17/12	20/18/14	21/19/13	19/18/13
Silicon	ppm	4	4	4	3
Sodium	ppm	3	3	3	2
Potassium	ppm	5	1	<1	<1



#### WEAR METALS

PQ		7	5	---	---
Iron	ppm	89	62	29	17
Copper	ppm	9	8	7	6
Lead	ppm	2	1	1	1
Tin	ppm	0	0	0	0
Aluminum	ppm	<1	<1	<1	<1
Chromium	ppm	<1	<1	0	0
Molybdenum	ppm	0	0	0	0
Nickel	ppm	<1	<1	0	0
Titanium	ppm	0	0	<1	0
Silver	ppm	0	0	0	0
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	0	0	0	0



#### ADDITIVES

Calcium	ppm	1015	995	1082	1017
Magnesium	ppm	5	5	4	5
Zinc	ppm	715	725	732	717
Phosphorus	ppm	623	648	668	671
Barium	ppm	0	0	0	0
Boron	ppm	<1	<1	<1	<1

#### Diagnosis

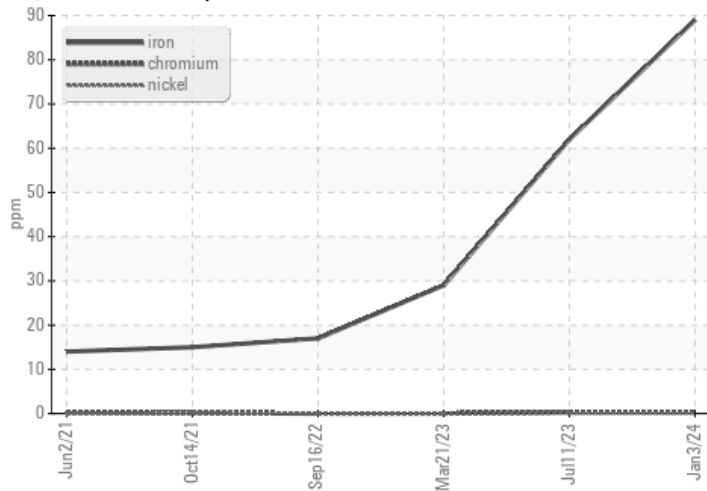
We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition. Please specify the brand, type, and viscosity of the oil on your next sample. Iron ppm levels are abnormal. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Depot: MOOPAL  
 Unique No: 5709315  
 Signed: Kevin Marson  
 Report Date: 16 Jan 2024

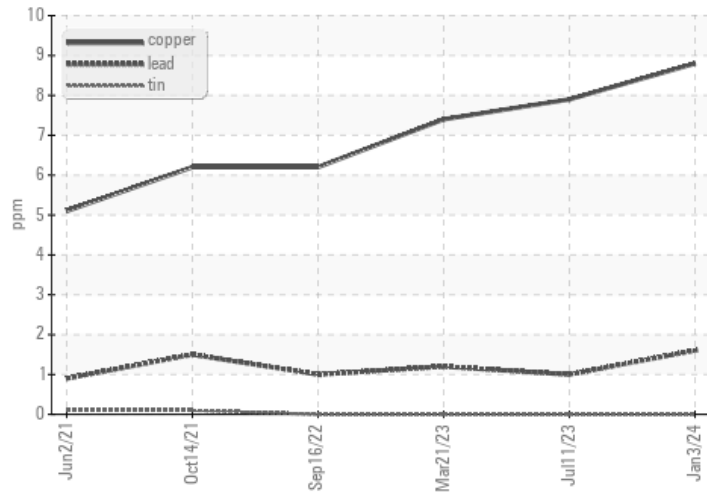


### GRAPHS

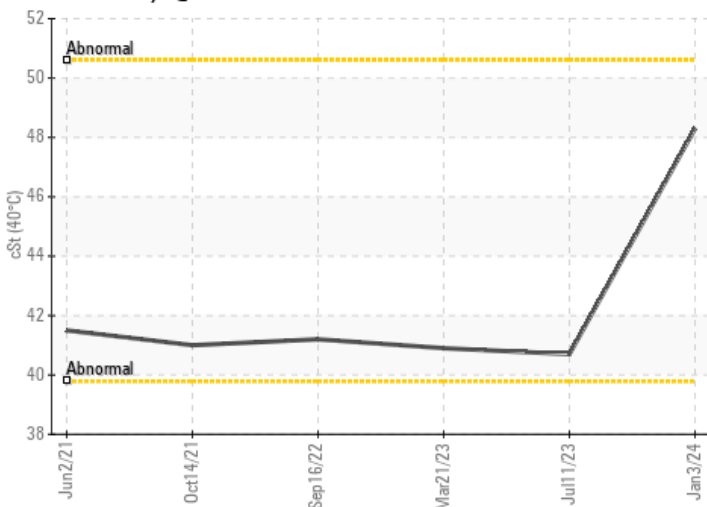
#### ● Ferrous Alloys



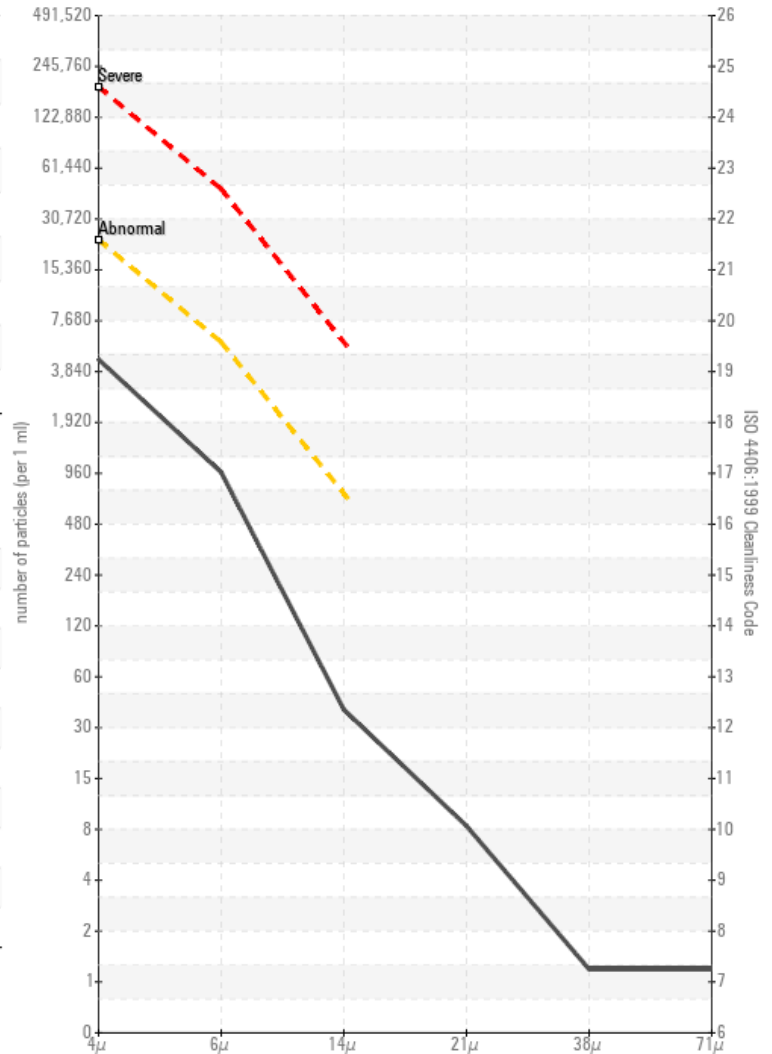
#### Non-ferrous Metals



#### Viscosity @ 40°C



#### Particle Count



#### Acid Number

