LIEBHERR
CONSTRUCTION EQUIPMENT

MS19 - Hydraulic System

Sample No: LH0244790

Oil Type: {unknown}

OSCAR WINSKI CO. INC
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SAMPLE INFORMATION

Sample Number		**LH0244790**	LH0244649	LHMC122792	---
Sample Date		**08 Feb 2024**	08 Dec 2023	03 Aug 2023	---
Machine Hours		**3903**	3512	2706	---
Oil Hours		**2000**	0	0	---
Oil Changed		**Not Changd**	Not Changd	Not Changd	---
Sample Status		**ABNORMAL**	NORMAL	ABNORMAL	---

OIL CONDITION

Visc @ 40°C	cSt	**35.1**	34.5	34.9	---
Acid Number (AN)	mg KOH/g	**0.92**	0.83	0.92	---

CONTAMINATION

Water	%	**0.148**	NEG	0.113	---
Particles >4µm		**28421**	555	1514	---
Particles >6µm		**4664**	104	177	---
Particles >14µm		**87**	24	7	---
ISO 4406:1999 (c)		**22/19/14**	16/14/12	18/15/10	---
Silicon	ppm	**1**	2	1	---
Sodium	ppm	**7**	5	4	---
Potassium	ppm	**2**	0	0	---

WEAR METALS

Iron	ppm	**8**	7	7	---
Copper	ppm	**6**	7	5	---
Lead	ppm	**2**	<1	<1	---
Tin	ppm	**<1**	0	0	---
Aluminum	ppm	**<1**	0	0	---
Chromium	ppm	**1**	1	<1	---
Molybdenum	ppm	**0**	0	0	---
Nickel	ppm	**<1**	0	0	---
Titanium	ppm	**0**	0	0	---
Silver	ppm	**0**	0	<1	---
Manganese	ppm	**0**	<1	<1	---
Vanadium	ppm	**<1**	0	0	---

ADDITIVES

Calcium	ppm	**965**	1151	1134	---
Magnesium	ppm	**3**	5	8	---
Zinc	ppm	**557**	628	640	---
Phosphorus	ppm	**496**	528	460	---
Barium	ppm	**0**	<1	0	---
Boron	ppm	**0**	0	0	---

Diagnosis

We recommend you service the filters on this component. Resample at the next service interval to monitor.All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. There is a light concentration of water present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Depot: OSCLAF
Unique No: 10911601
Signed: Doug Bogart
Report Date: 06 Mar 2024

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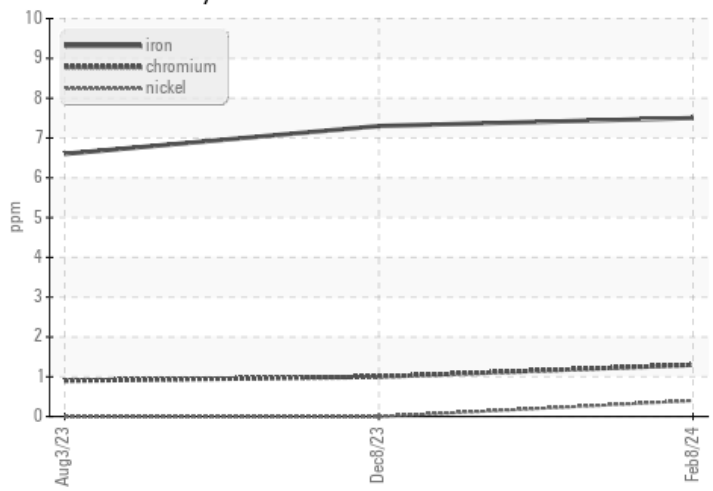
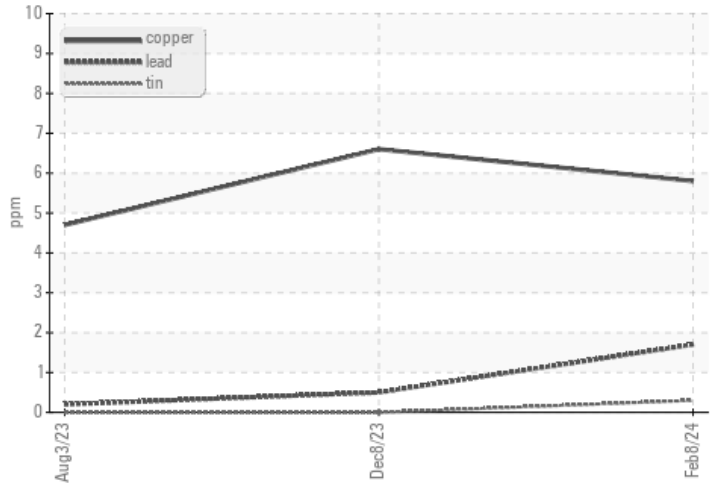
GRAPHS

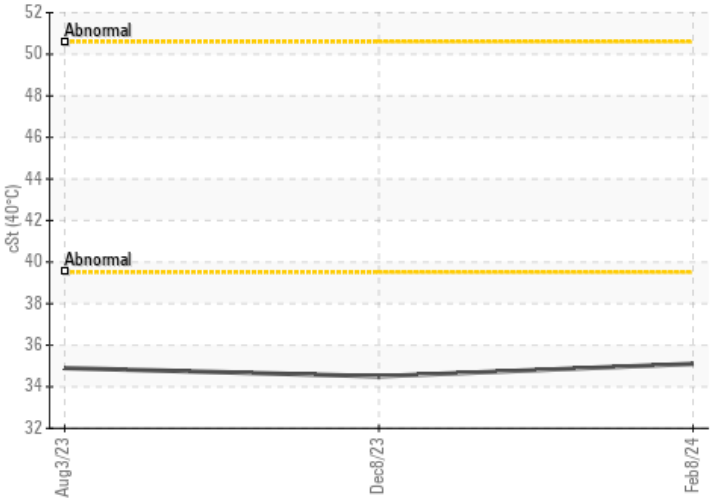
Ferrous Alloys



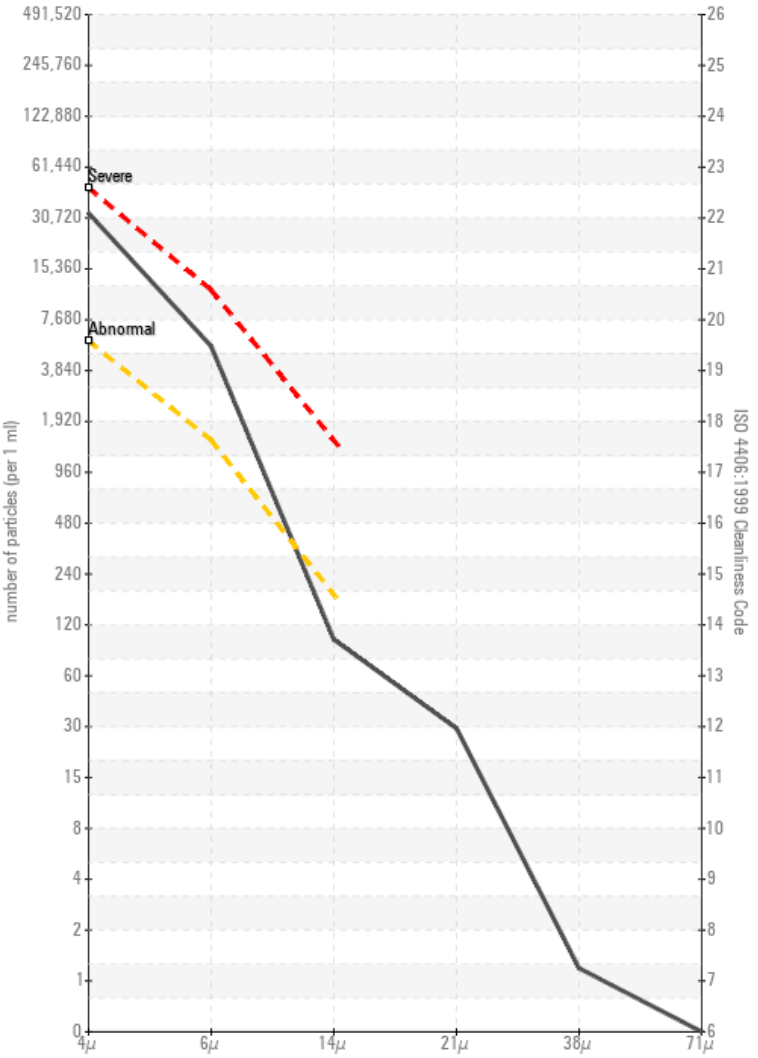
Non-ferrous Metals



Viscosity @ 40°C



Particle Count



Acid Number