

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR A944B 016166-744 - Hydraulic System

Sample No: LH0273254

Oil Type: CONOCO PHILLIPS GUARDOL ECT 15W40



SAMPLE INFORMATION

Sample Number	LH0273254	LH0244636	LH0208104	LH0171889
Sample Date	11 Jan 2024	23 Jun 2023	20 Jun 2022	10 May 2021
Machine Hours	49427	48037	45836	42672
Oil Hours	0	0	300	0
Oil Changed	Not Changd	Not Changd	Changed	Not Changd
Sample Status	ABNORMAL	ABNORMAL	NORMAL	ABNORMAL

NILES IRON & METAL CO. INC.

P.O. BOX 166

NILES, OH

US 44446

Contact: CRAIG STINSON

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OIL CONDITION

Visc @ 40°C	cSt	68.8	70.4	71.3	64.4
Acid Number (AN)	mg KOH/g	1.66	1.81	1.57	1.271



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Particles >4µm		55745	55363	6422	72644
Particles >6µm		6381	3495	3499	1497
Particles >14µm		42	93	595	26
ISO 4406:1999 (c)		23/20/13	23/19/14	20/19/16	23/18/12
Silicon	ppm	4	4	4	3
Sodium	ppm	0	3	4	2
Potassium	ppm	3	2	2	2



WEAR METALS

Iron	ppm	5	6	15	11
Copper	ppm	2	2	4	4
Lead	ppm	0	0	<1	<1
Tin	ppm	0	<1	<1	<1
Aluminum	ppm	2	0	2	0
Chromium	ppm	<1	1	3	6
Molybdenum	ppm	32	26	23	20
Nickel	ppm	0	0	0	0
Titanium	ppm	9	11	2	4
Silver	ppm	0	0	<1	<1
Manganese	ppm	0	<1	<1	<1
Vanadium	ppm	0	<1	0	<1



ADDITIVES

Calcium	ppm	1491	1697	1487	1516
Magnesium	ppm	577	569	550	539
Zinc	ppm	1199	1203	1178	1079
Phosphorus	ppm	895	1060	1030	990
Barium	ppm	5	0	0	0
Boron	ppm	71	88	99	106

Diagnosis

The filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition. All component wear rates are normal. There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

Depot: NILNIL

Unique No: 10869404

Signed: Wes Davis

Report Date: 07 Feb 2024

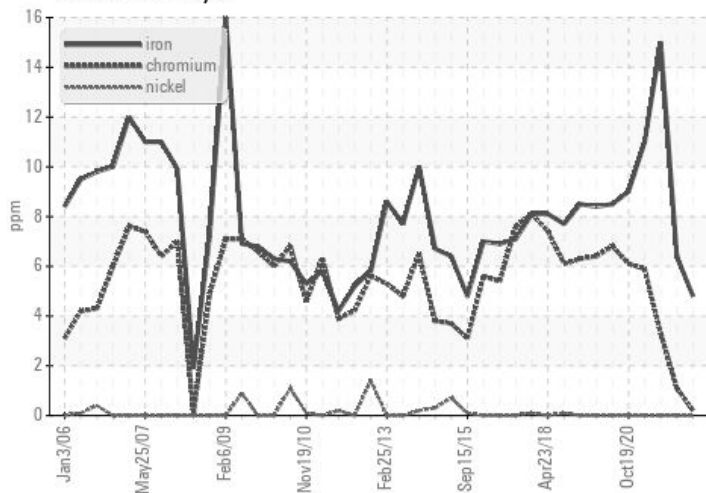
LIEBHERR

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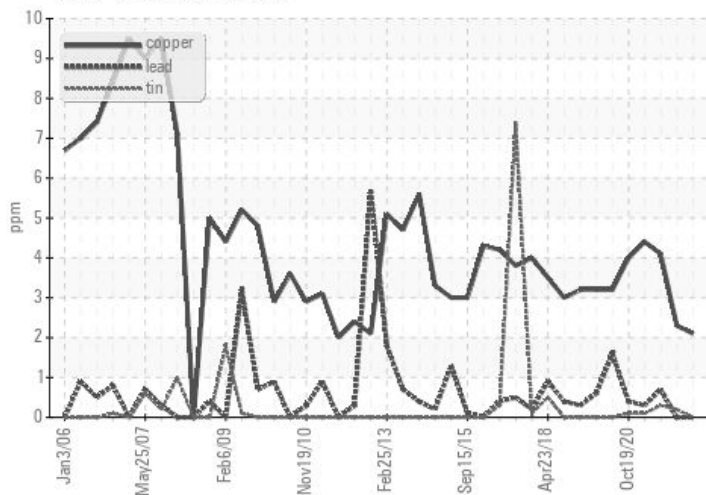


GRAPHS

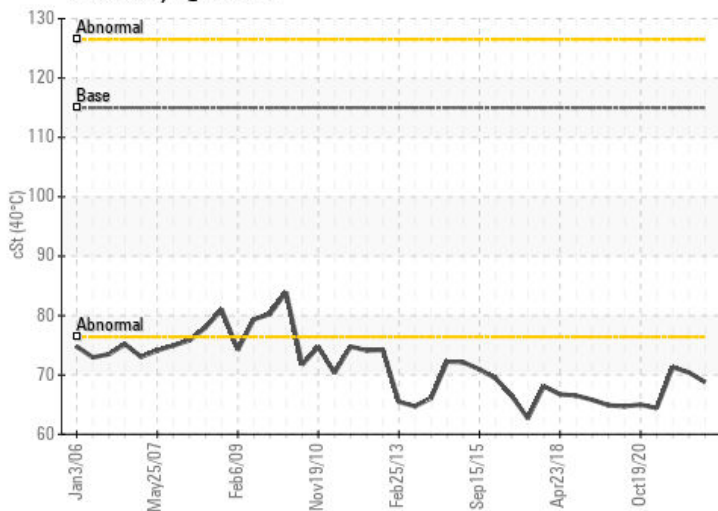
Ferrous Alloys



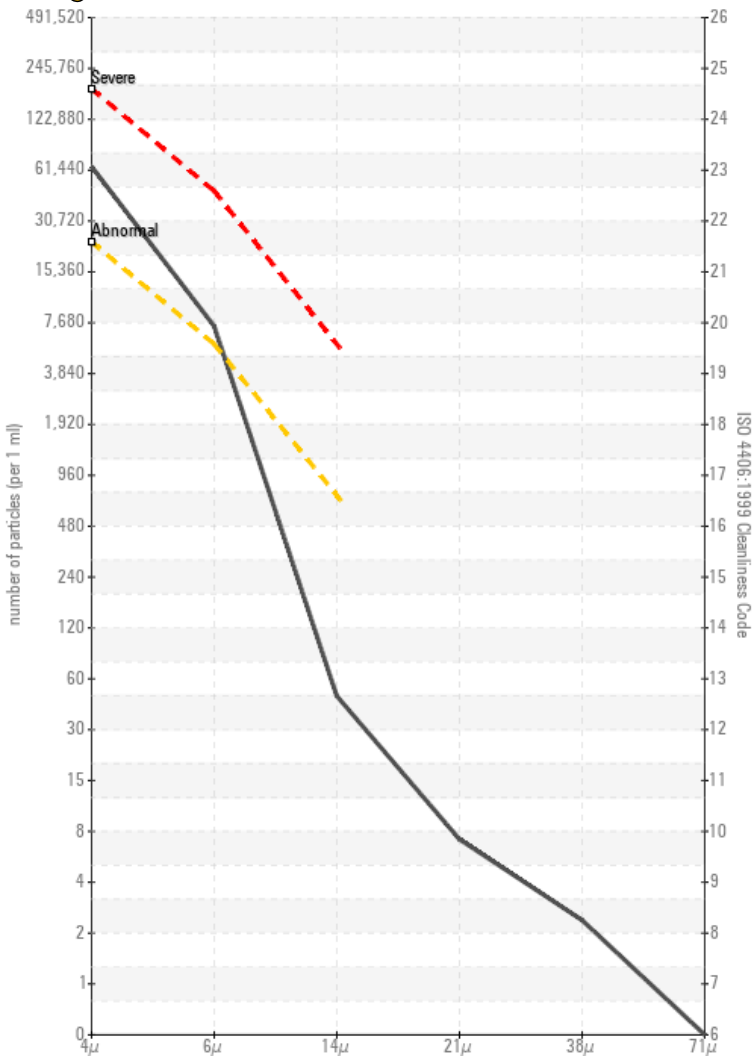
Non-ferrous Metals



Viscosity @ 40°C



Particle Count



Acid Number

