

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR R938 050886-1650 - Diesel Engine

Sample No: LH0258262

Oil Type: LIEBHERR MOTOROIL 10W-40 LOW ASH



M&F CONCRETE PRODUCTS CO
4002 CATLETT RD
CATLETT, VA
US 20119
Contact: Service Manager



SAMPLE INFORMATION

Sample Number	LH0258262	LH0258962	LH0254073	LH0243978
Sample Date	08 Oct 2023	09 Aug 2023	02 Apr 2023	31 Jan 2023
Machine Hours	431	1993	1018	575
Oil Hours	0	1993	0	575
Oil Changed	Not Changd	Changed	Not Changd	Changed
Sample Status	ATTENTION	NORMAL	NORMAL	ATTENTION



OIL CONDITION

Visc @ 100°C	cSt	12.0	13.4	13.0	11.6
Base Number (BN)	mg KOH/g	6.0	6.1	7.0	4.7
Oxidation (PA)	%	146	90	84	180



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.1	0.1	0.1	0.1
Nitration (PA)	%	86	84	77	86
Sulfation (PA)	%	88	59	55	101
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	0.0	<1.0	<1.0	1.4
Silicon	ppm	60	13	7	10
Sodium	ppm	1	3	2	3
Potassium	ppm	3	4	2	2



WEAR METALS

Iron	ppm	36	9	6	16
Copper	ppm	24	4	6	46
Lead	ppm	0	2	0	3
Tin	ppm	0	<1	0	2
Aluminum	ppm	4	3	2	2
Chromium	ppm	<1	<1	<1	2
Molybdenum	ppm	30	2	4	48
Nickel	ppm	0	0	<1	0
Titanium	ppm	<1	<1	0	<1
Silver	ppm	0	<1	0	0
Manganese	ppm	3	1	<1	1
Vanadium	ppm	0	<1	0	0



ADDITIVES

Calcium	ppm	1589	1395	1369	1719
Magnesium	ppm	689	834	818	950
Zinc	ppm	911	974	911	966
Phosphorus	ppm	749	811	785	730
Barium	ppm	8	0	1	33
Boron	ppm	86	52	132	116

T:
F:

Diagnosis

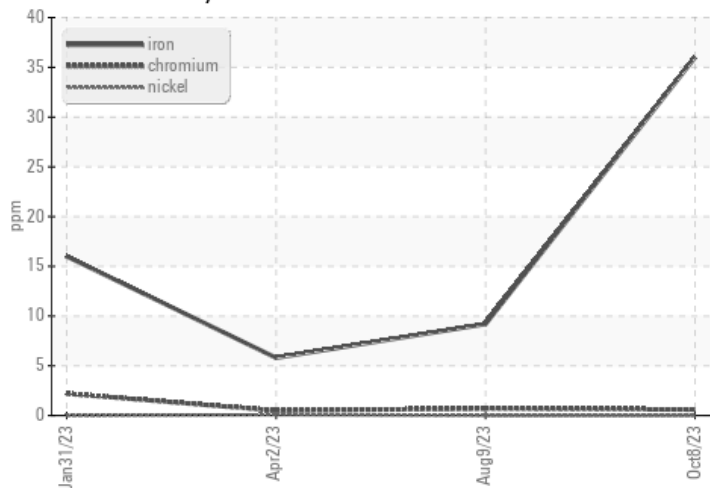
No corrective action is recommended at this time. Resample at the next service interval to monitor. All component wear rates are normal. Fuel content negligible. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Depot: MECCAT
Unique No: 10778275
Signed: Jonathan Hester
Report Date: 15 Dec 2023

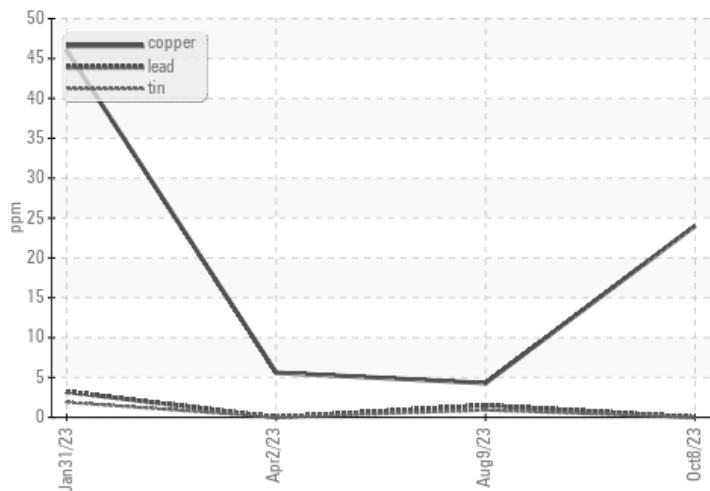


GRAPHS

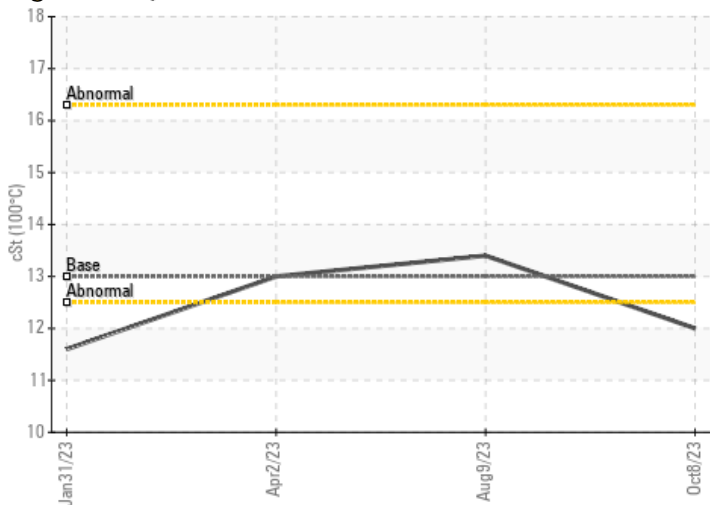
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

