

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR R938 050886-1650 - Diesel Engine

Sample No: LH0267310

Oil Type: LIEBHERR MOTOROIL 10W-40 LOW ASH



SAMPLE INFORMATION

Sample Number	LH0267310	LH0258262	LH0258962	LH0254073
Sample Date	19 Dec 2023	08 Oct 2023	09 Aug 2023	02 Apr 2023
Machine Hours	2998	431	1993	1018
Oil Hours	0	0	1993	0
Oil Changed	Not Changd	Not Changd	Changed	Not Changd
Sample Status	ATTENTION	ATTENTION	NORMAL	NORMAL

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



OIL CONDITION

Visc @ 100°C	cSt	11.5	12.0	13.4	13.0
Base Number (BN)	mg KOH/g	13.5	6.0	6.1	7.0
Oxidation (PA)	%	53	146	90	84

T:
F:



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.1	0.1	0.1	0.1
Nitration (PA)	%	109	86	84	77
Sulfation (PA)	%	47	88	59	55
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	1.9	0.0	<1.0	<1.0
Silicon	ppm	30	60	13	7
Sodium	ppm	3	1	3	2
Potassium	ppm	0	3	4	2

Diagnosis

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.



WEAR METALS

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



ADDITIVES

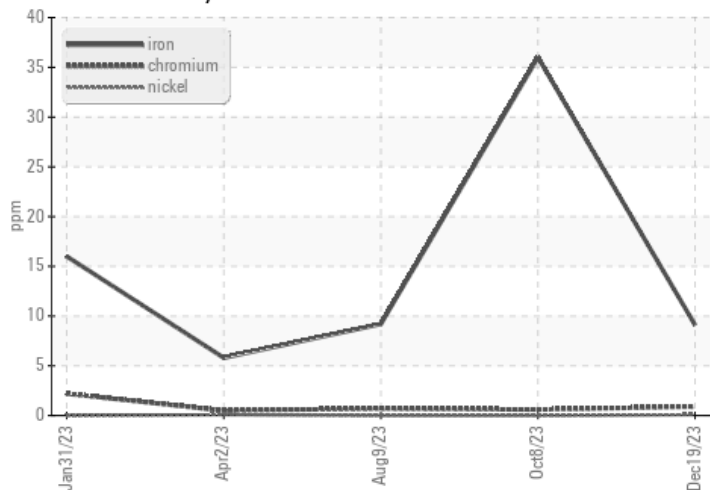
Calcium	ppm	4124	1589	1395	1369
Magnesium	ppm	97	689	834	818
Zinc	ppm	1221	911	974	911
Phosphorus	ppm	1068	749	811	785
Barium	ppm	<1	8	0	1
Boron	ppm	251	86	52	132

Depot: MECCAT
 Unique No: 10831437
 Signed: Doug Bogart
 Report Date: 16 Jan 2024

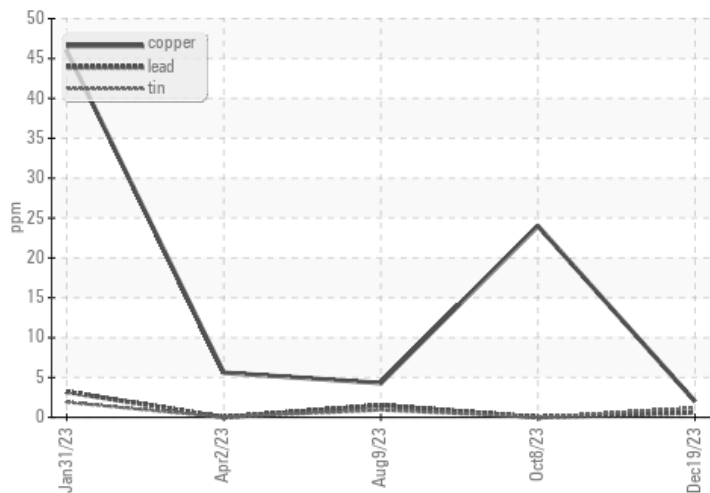


GRAPHS

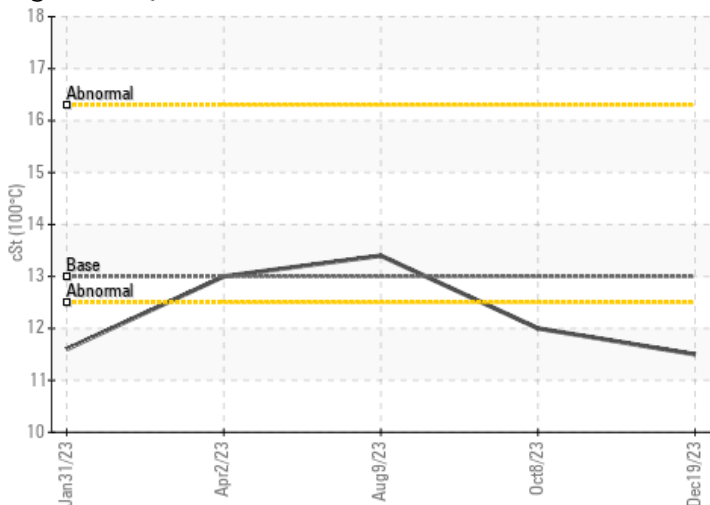
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

