

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR R936 040489-1148 - Diesel Engine

Sample No: LH0229684

Oil Type: LIEBHERR MOTOROIL 10W-40 LOW ASH



Sample Information

Sample Number	LH0229684	LH0267374	LH0244008	LHMC104329
Sample Date	21 Mar 2024	30 Aug 2023	21 May 2023	27 Jul 2022
Machine Hours	9014	8524	8050	6871
Oil Hours	1000	474	8050	494
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	ABNORMAL	ABNORMAL	NORMAL

ACECO
10119 RESIDENCY ROAD
MANASSAS, VA
US 20110
Contact: RON BROCK



Oil Condition

Visc @ 100°C	cSt	14.9	16.4	16.0	15.0
Base Number (BN)	mg KOH/g	8.3	5.5	7.3	8.7
Oxidation (PA)	%	82	98	98	93

T: (703)392-0111
F: (703)331-5604



Contamination

Water	%	NEG	NEG	NEG	NEG
Soot %	%	2.3	3.1	3.4	2.6
Nitration (PA)	%	107	128	114	117
Sulfation (PA)	%	67	88	79	74
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	0.5	<1.0
Silicon	ppm	10	11	11	9
Sodium	ppm	2	4	2	8
Potassium	ppm	2	4	4	2

Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



Wear Metals

Iron	ppm	33	47	60	34
Copper	ppm	3	4	10	3
Lead	ppm	2	3	3	2
Tin	ppm	<1	<1	1	1
Aluminum	ppm	7	8	9	7
Chromium	ppm	1	2	2	1
Molybdenum	ppm	3	2	1	1
Nickel	ppm	0	<1	<1	0
Titanium	ppm	0	<1	<1	0
Silver	ppm	0	0	0	<1
Manganese	ppm	<1	1	1	<1
Vanadium	ppm	0	<1	<1	0



Additives

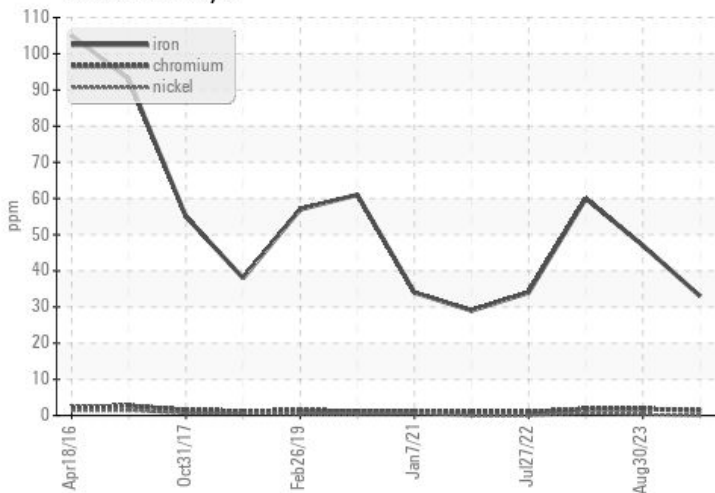
Calcium	ppm	1743	1438	1428	1274
Magnesium	ppm	793	849	804	765
Zinc	ppm	1066	986	969	824
Phosphorus	ppm	907	821	802	685
Barium	ppm	0	0	2	<1
Boron	ppm	69	28	37	42

Depot: ACEMAN
Unique No: 11003134
Signed: Wes Davis
Report Date: 29 Apr 2024

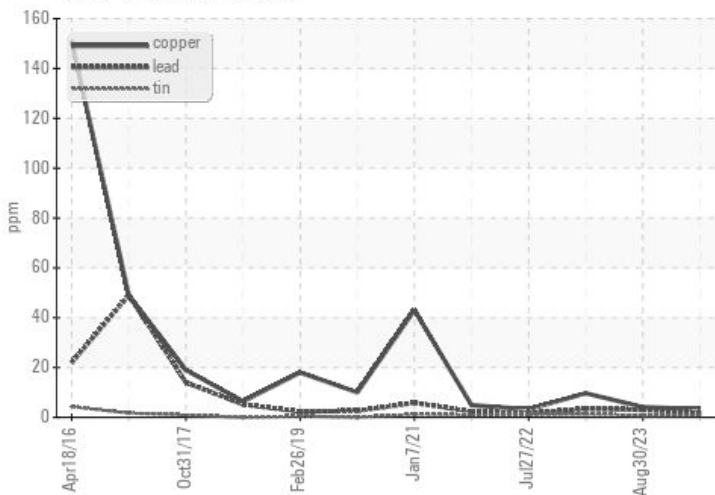


Graphs

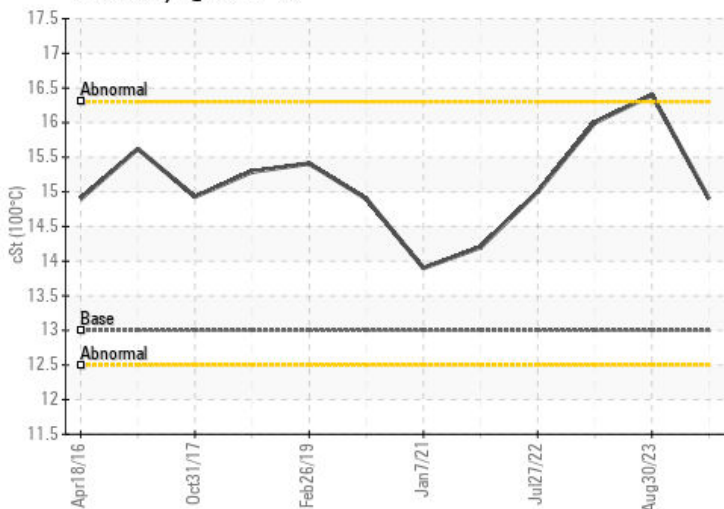
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

