

LIEBHERR

CONSTRUCTION EQUIPMENT



MS18 - Diesel Engine

Sample No: LH0244834

Oil Type: DIESEL ENGINE OIL SAE 40



SAMPLE INFORMATION

Sample Number	LH0244834	LHMC99037	LHMC131456	LHMC119686
Sample Date	21 Mar 2024	01 Dec 2023	03 Aug 2023	13 May 2023
Machine Hours	6118	5393	4388	3734
Oil Hours	0	0	0	0
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

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OIL CONDITION

Visc @ 100°C	cSt	13.4	13.4	13.5	13.6
Base Number (BN)	mg KOH/g	7.0	4.4	7.8	5.8
Oxidation (PA)	%	70	71	62	84

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.



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.3	0.5	0.4	0.6
Nitration (PA)	%	78	80	71	94
Sulfation (PA)	%	57	58	54	66
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	6	4	3	6
Sodium	ppm	2	1	1	3
Potassium	ppm	3	2	2	2



WEAR METALS

Iron	ppm	30	25	16	30
Copper	ppm	2	2	2	4
Lead	ppm	0	0	<1	<1
Tin	ppm	<1	<1	0	<1
Aluminum	ppm	3	<1	<1	0
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	94	59	59	64
Nickel	ppm	<1	<1	0	<1
Titanium	ppm	<1	<1	0	<1
Silver	ppm	0	0	0	0
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	<1	0	0	0



ADDITIVES

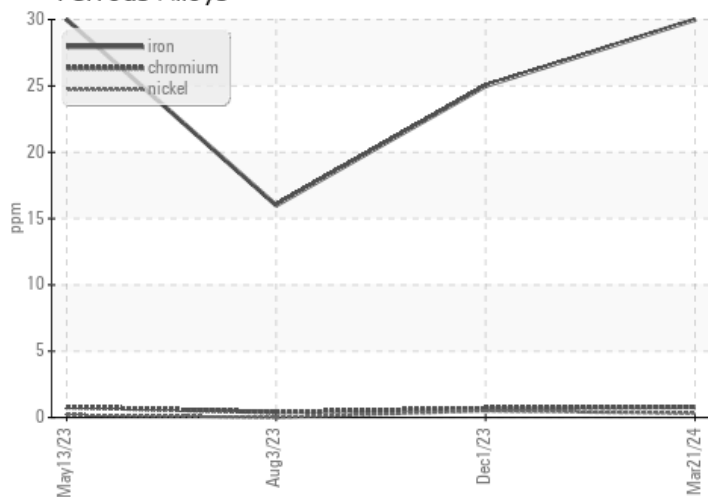
Calcium	ppm	1855	1188	1308	1904
Magnesium	ppm	1441	927	971	550
Zinc	ppm	1975	1286	1360	1382
Phosphorus	ppm	1456	994	1033	1008
Barium	ppm	2	3	0	0
Boron	ppm	12	8	9	41

Depot: OSCLAF
Unique No: 10939522
Signed: Sean Felton
Report Date: 25 Mar 2024

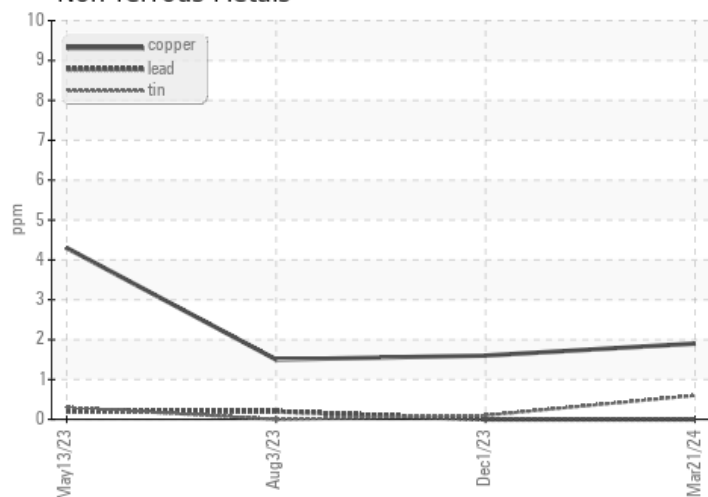


GRAPHS

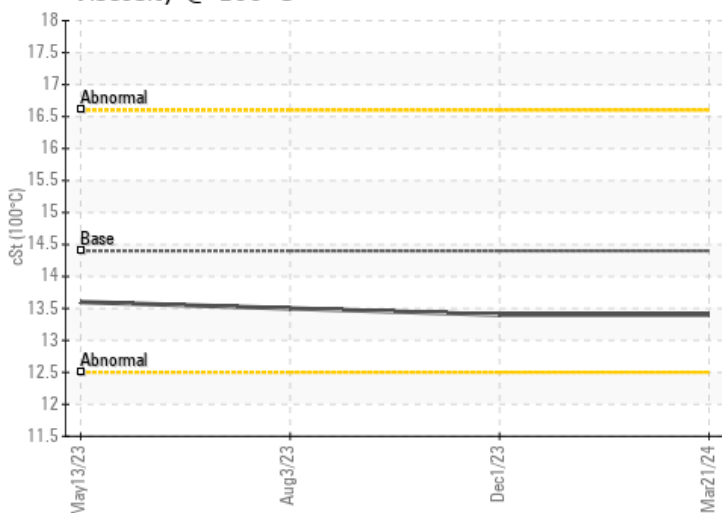
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

