

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR L586 041804-461 - Diesel Engine

Sample No: LH0268831

Oil Type: DIESEL ENGINE OIL SAE 5W40



SAMPLE INFORMATION

Sample Number	LH0268831	LH0220072	LH0236123	LH0217354
Sample Date	18 Jan 2024	10 Jan 2023	06 Oct 2022	21 Jan 2022
Machine Hours	14055	12565	11995	10154
Oil Hours	500	500	0	361
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

MIDDLE RIVER MARINE
 1771 SOUTH TORRENCE AVE
 CHICAGO, IL
 US 60617
 Contact: Scott Molitor
 scottmolitor@gomiddleriver.com
 T:
 F:



OIL CONDITION

Visc @ 100°C	cSt	14.2	13.6	10.9	11.1
Base Number (BN)	mg KOH/g	6.8	7.0	8.5	8.4
Oxidation (PA)	%	53	60	72	69



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.2	0.4	0.5	0.2
Nitration (PA)	%	68	76	84	69
Sulfation (PA)	%	52	54	58	57
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	6	6	6	7
Sodium	ppm	0	1	2	<1
Potassium	ppm	1	2	<1	0



WEAR METALS

Iron	ppm	0	6	8	5
Copper	ppm	1	<1	1	<1
Lead	ppm	<1	<1	1	<1
Tin	ppm	0	<1	<1	<1
Aluminum	ppm	1	1	2	1
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	4	18	70	53
Nickel	ppm	0	0	0	0
Titanium	ppm	<1	<1	0	<1
Silver	ppm	0	0	0	0
Manganese	ppm	0	<1	<1	<1
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	1269	1265	1167	1275
Magnesium	ppm	710	662	709	748
Zinc	ppm	838	819	846	824
Phosphorus	ppm	714	659	682	751
Barium	ppm	0	0	0	0
Boron	ppm	76	62	33	53

Diagnosis

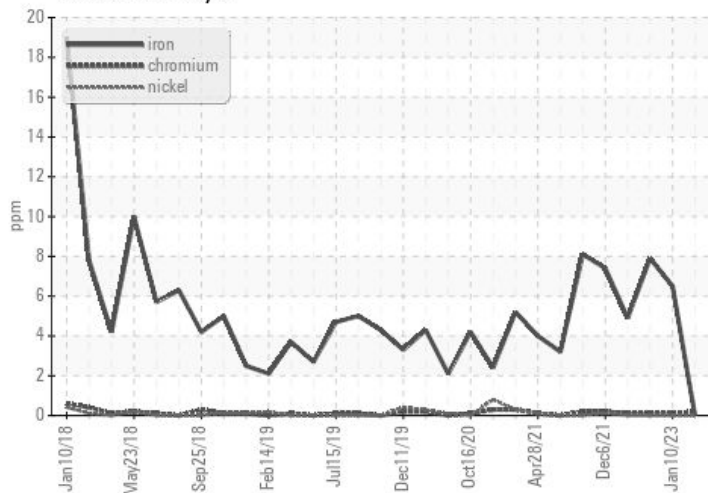
Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Depot: MIDCHILL
 Unique No: 10862461
 Signed: Wes Davis
 Report Date: 06 Feb 2024

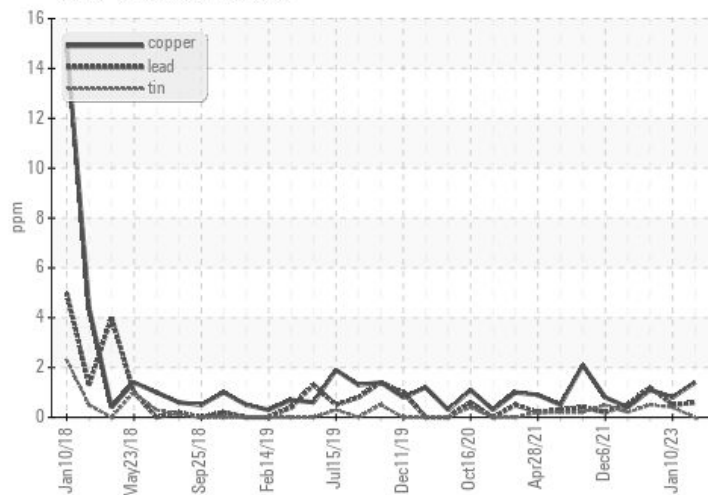


GRAPHS

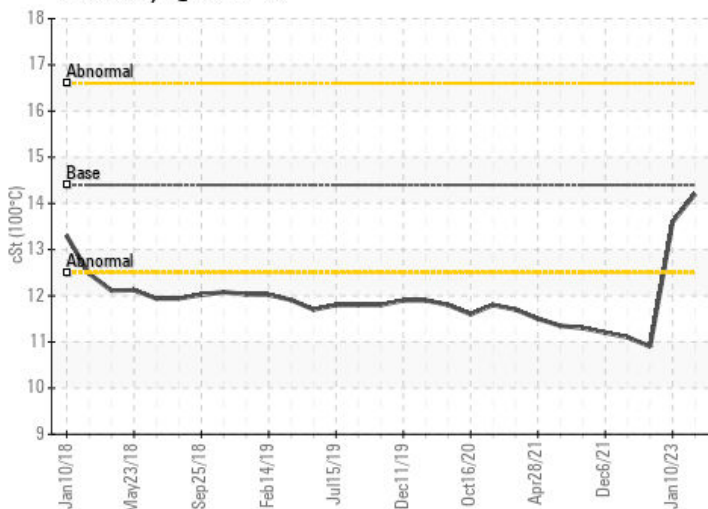
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

