

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR LH110 1227-155752 - Diesel Engine

Sample No: LH0267540

Oil Type: DIESEL ENGINE OIL SAE 15W40



KINDER MORGAN
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Sample Information

Sample Number	LH0267540	LH0267550	LH0280583	LH0258470
Sample Date	20 May 2024	06 May 2024	18 Apr 2024	24 Mar 2024
Machine Hours	2578	2262	1980	1781
Oil Hours	547	231	0	273
Oil Changed	Changed	Not Changd	Changed	Not Changd
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL



Oil Condition

Visc @ 100°C	cSt	12.3	12.5	12.3	12.7
Base Number (BN)	mg KOH/g	6.5	7.3	6.9	7.5
Oxidation (PA)	%	68	61	67	62



Contamination

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.1	0.1	0.2	0.1
Nitration (PA)	%	67	57	69	54
Sulfation (PA)	%	58	56	58	56
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	0.6	<1.0
Silicon	ppm	10	10	10	8
Sodium	ppm	3	3	<1	<1
Potassium	ppm	3	3	3	2



Wear Metals

Iron	ppm	5	5	5	3
Copper	ppm	2	1	2	<1
Lead	ppm	1	<1	<1	0
Tin	ppm	<1	<1	<1	0
Aluminum	ppm	4	4	2	3
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	82	83	84	83
Nickel	ppm	<1	<1	<1	0
Titanium	ppm	<1	<1	<1	0
Silver	ppm	1	1	0	0
Manganese	ppm	<1	<1	<1	0
Vanadium	ppm	<1	<1	<1	0



Additives

Calcium	ppm	1312	1279	1341	1382
Magnesium	ppm	408	397	413	401
Zinc	ppm	1157	1097	1204	1204
Phosphorus	ppm	976	921	1140	1084
Barium	ppm	1	1	<1	0
Boron	ppm	310	380	421	375

Diagnosis

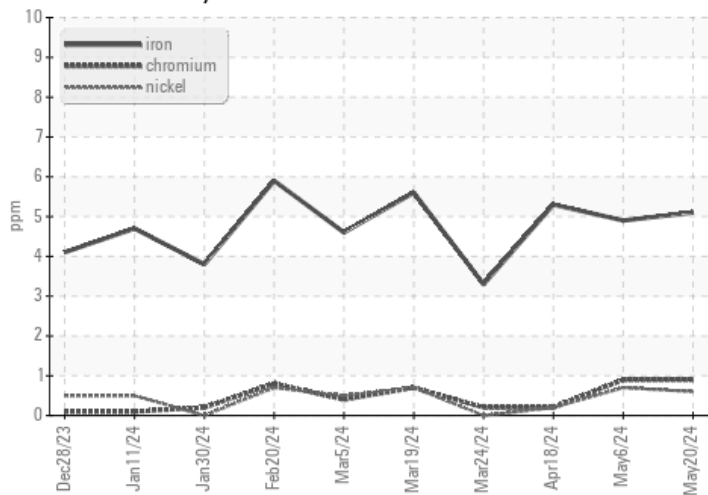
Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Depot: KINTRI
 Unique No: 11048758
 Signed: Jonathan Hester
 Report Date: 30 May 2024

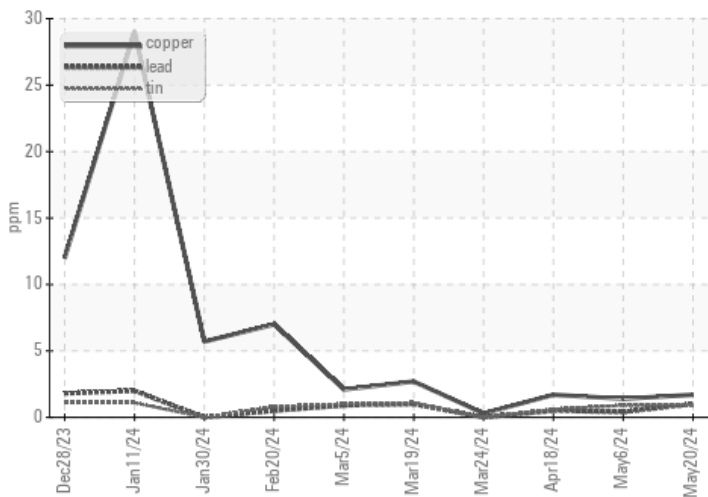


Graphs

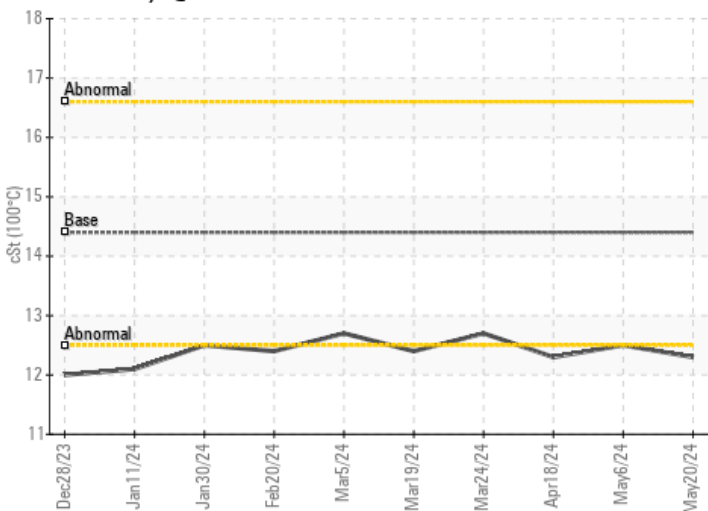
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

