

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR LH50 1216-116574 - Diesel Engine

Sample No: LH0272152

Oil Type: DIESEL ENGINE OIL SAE 5W40



SAMPLE INFORMATION

Sample Number	LH0272152	LH0171171	LH0171113	LH0171104
Sample Date	20 Dec 2023	29 Aug 2023	27 Apr 2023	27 Jan 2023
Machine Hours	19776	17910	16726	14930
Oil Hours	0	0	0	0
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	ABNORMAL	NORMAL	NORMAL	NORMAL

BOISE WHITE PAPER

3RD AVE AND HWY 11, 400 2ND ST
INTERNATIONAL FALLS, MN
US 56649
Contact: GARY MANN
garymann@packagingcorp.com
T:
F: (218)285-5860



OIL CONDITION

Visc @ 100°C	cSt	14.2	13.2	14.1	13.7
Base Number (BN)	mg KOH/g	3.7	5.1	4.0	5.4
Oxidation (PA)	%	122	91	112	120



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.2	0.2	0.2	0.2
Nitration (PA)	%	118	93	110	122
Sulfation (PA)	%	80	70	69	68
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	11	9	8	6
Sodium	ppm	4	3	1	1
Potassium	ppm	1	2	6	2



WEAR METALS

Iron	ppm	11	8	13	15
Copper	ppm	3	2	2	2
Lead	ppm	<1	0	<1	1
Tin	ppm	2	<1	<1	<1
Aluminum	ppm	2	2	0	6
Chromium	ppm	<1	<1	<1	1
Molybdenum	ppm	5	3	9	7
Nickel	ppm	0	0	0	0
Titanium	ppm	85	84	66	0
Silver	ppm	0	0	0	<1
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	2	<1	<1	0



ADDITIVES

Calcium	ppm	1285	1408	1305	1224
Magnesium	ppm	759	821	744	897
Zinc	ppm	1199	1237	1117	944
Phosphorus	ppm	918	995	899	736
Barium	ppm	0	0	0	0
Boron	ppm	37	35	42	32

Diagnosis

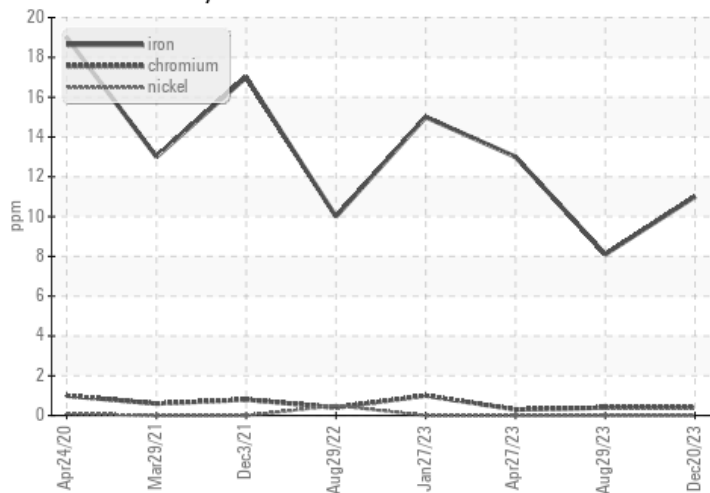
The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN level is low. The condition of the oil is acceptable for the time in service.

Depot: BOIINT
Unique No: 10833226
Signed: Don Baldrige
Report Date: 17 Jan 2024

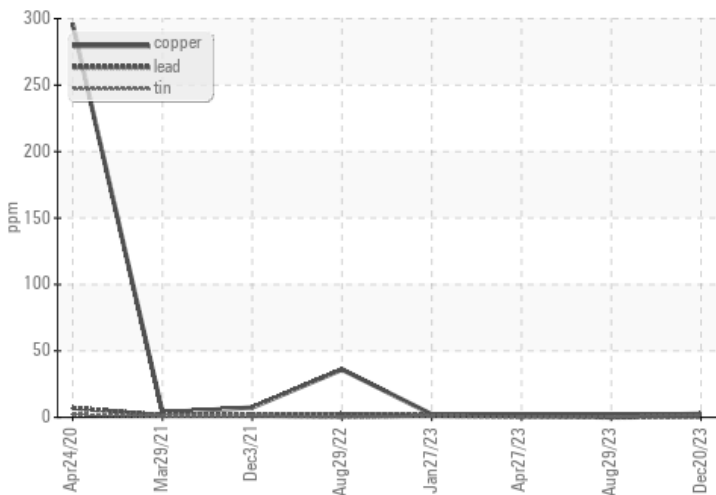


GRAPHS

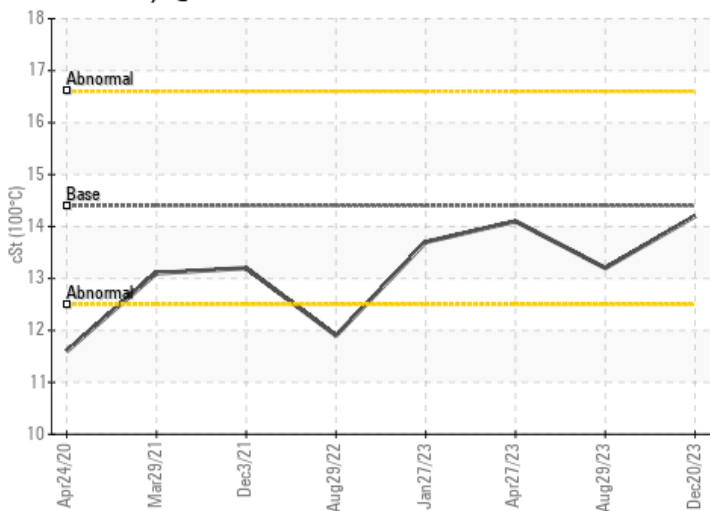
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

