

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR LH50 1203-77107 - Diesel Engine

Sample No: LH0254742

Oil Type: CHEVRON DELO LE 5W40



AMERICAN STATE EQUIPMENT CO.
 2400 NORTH 14TH AVENUE
 WAUSAU, WI
 US 54401
 Contact: CHRIS BARTNIK
 cbartnik@amstate.com
 T: (715)675-6900
 F: (715)675-9748



SAMPLE INFORMATION

Sample Number	LH0254742	LH0254031	LH0243172	LH0229279
Sample Date	16 Jun 2023	28 Mar 2023	22 Dec 2022	31 May 2022
Machine Hours	18994	18616	17940	16365
Oil Hours	0	0	0	0
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	ABNORMAL	SEVERE	ABNORMAL



OIL CONDITION

Visc @ 100°C	cSt	14.2	14.6	15.2	13.9
Base Number (BN)	mg KOH/g	8.6	6.0	1.1	7.6
Oxidation (PA)	%	63	76	90	78



CONTAMINATION

Soot %	%	1.5	3.6	5.1	3.1
Nitration (PA)	%	99	128	159	120
Sulfation (PA)	%	60	76	97	83
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	7	7	8	9
Sodium	ppm	1	2	6	5
Potassium	ppm	2	2	4	4



WEAR METALS

Iron	ppm	22	57	82	48
Copper	ppm	5	33	30	10
Lead	ppm	0	2	12	4
Tin	ppm	<1	1	3	1
Aluminum	ppm	4	7	11	6
Chromium	ppm	<1	2	2	1
Molybdenum	ppm	21	43	42	33
Nickel	ppm	<1	1	1	0
Titanium	ppm	61	26	62	81
Silver	ppm	0	<1	0	<1
Manganese	ppm	<1	1	1	<1
Vanadium	ppm	<1	<1	<1	<1



ADDITIVES

Calcium	ppm	1239	1092	1496	1337
Magnesium	ppm	804	837	710	623
Zinc	ppm	1250	1161	1192	1162
Phosphorus	ppm	1004	908	918	952
Barium	ppm	0	0	0	0
Boron	ppm	41	14	45	42

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: LEC0008
 Unique No: 10535448
 Signed: Don Baldrige
 Report Date: 30 Jun 2023

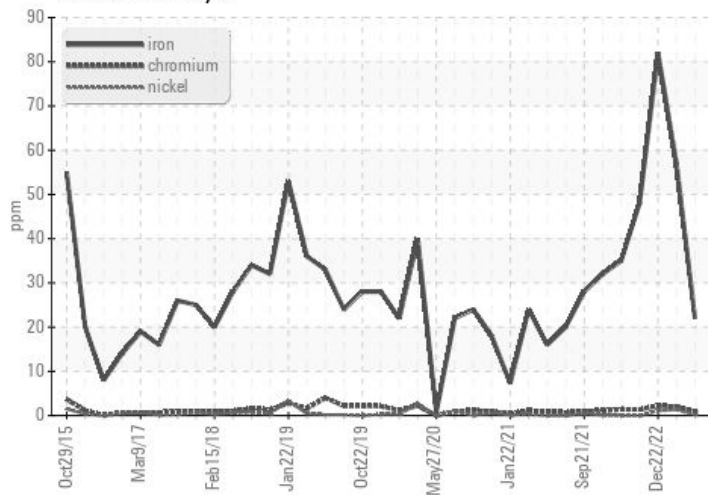
LIEBHERR

CONSTRUCTION EQUIPMENT

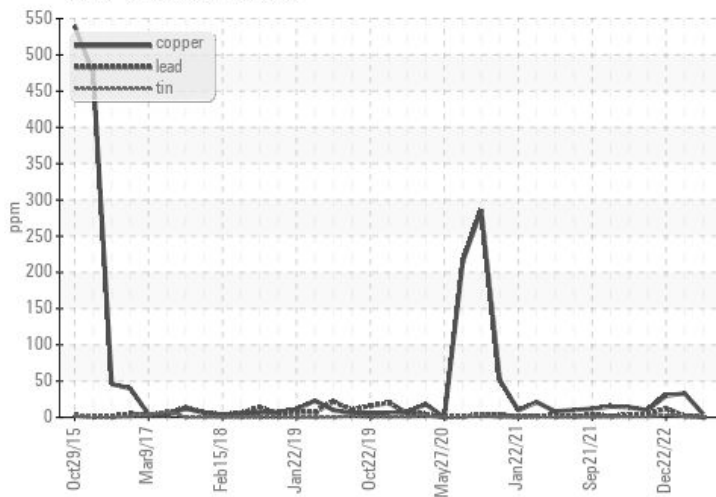


GRAPHS

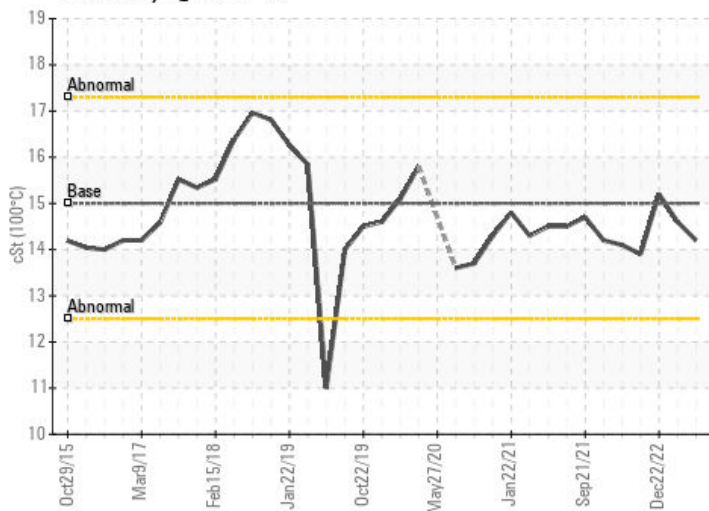
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

