

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR LH50 1203-77107 - Diesel Engine

Sample No: LH0243353

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	LH0243353	LH0254742	LH0254031	LH0243172
Sample Date	30 Aug 2023	16 Jun 2023	28 Mar 2023	22 Dec 2022
Machine Hours	19522	18994	18616	17940
Oil Hours	0	0	0	0
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	ABNORMAL	SEVERE



#### OIL CONDITION

Visc @ 100°C	cSt	14.2	14.2	14.6	15.2
Base Number (BN)	mg KOH/g	7.5	8.6	6.0	1.1
Oxidation (PA)	%	63	63	76	90



#### CONTAMINATION

Soot %	%	1.9	1.5	3.6	5.1
Nitration (PA)	%	100	99	128	159
Sulfation (PA)	%	66	60	76	97
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	8	7	7	8
Sodium	ppm	4	1	2	6
Potassium	ppm	2	2	2	4



#### WEAR METALS

Iron	ppm	31	22	57	82
Copper	ppm	5	5	33	30
Lead	ppm	<1	0	2	12
Tin	ppm	<1	<1	1	3
Aluminum	ppm	7	4	7	11
Chromium	ppm	1	<1	2	2
Molybdenum	ppm	11	21	43	42
Nickel	ppm	0	<1	1	1
Titanium	ppm	78	61	26	62
Silver	ppm	0	0	<1	0
Manganese	ppm	<1	<1	1	1
Vanadium	ppm	<1	<1	<1	<1



#### ADDITIVES

Calcium	ppm	1371	1239	1092	1496
Magnesium	ppm	788	804	837	710
Zinc	ppm	1242	1250	1161	1192
Phosphorus	ppm	1032	1004	908	918
Barium	ppm	0	0	0	0
Boron	ppm	24	41	14	45

#### Diagnosis

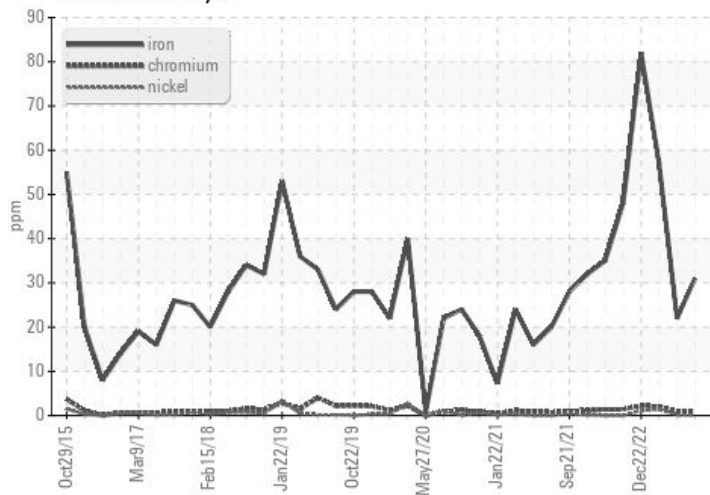
Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Depot: LEC0008  
 Unique No: 10633509  
 Signed: Wes Davis  
 Report Date: 06 Sep 2023

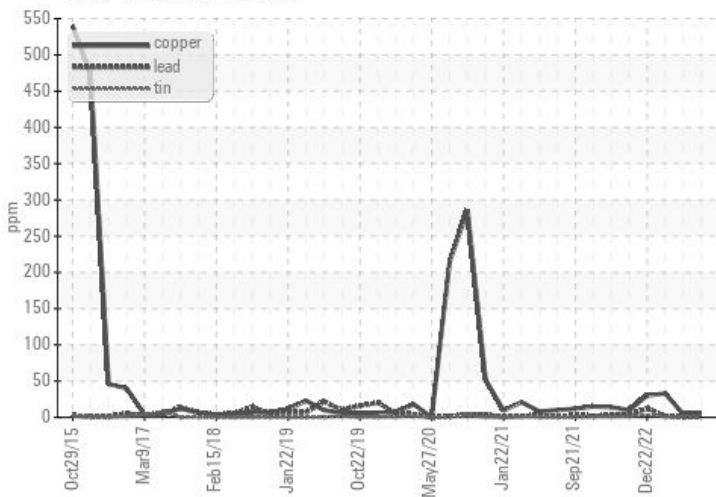


### GRAPHS

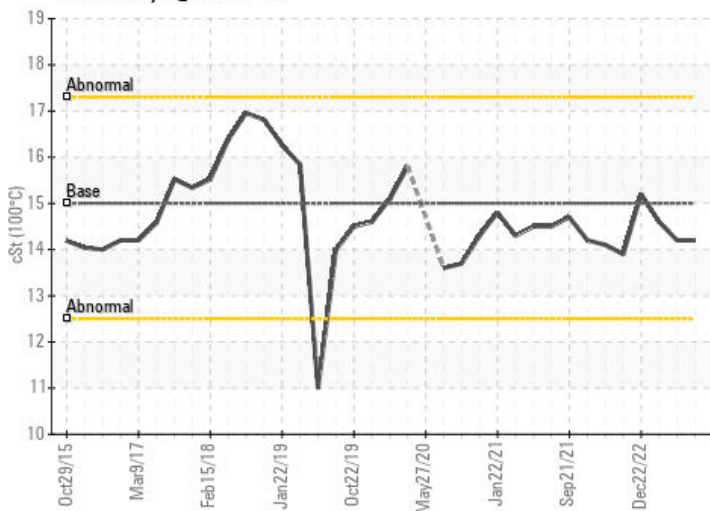
#### Ferrous Alloys



#### Non-ferrous Metals



#### Viscosity @ 100°C



#### Base Number

