

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR A944 032403-194 - Diesel Engine

Sample No: LH0244851

Oil Type: CONOCO PHILLIPS GUARDOL ECT 15W40



SAMPLE INFORMATION

Sample Number	LH0244851	LH0244854	LH0244638	LH0244641
Sample Date	09 Jan 2024	30 Nov 2023	02 Oct 2023	15 Aug 2023
Machine Hours	34200	33998	33776	33575
Oil Hours	250	300	300	300
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	ATTENTION

NILES IRON & METAL CO. INC.

P.O. BOX 166

NILES, OH

US 44446

Contact: CRAIG STINSON

cstinson529@gmail.com;canastasio@wearcheckusa.com

T: (330)652-2262

F: (330)652-1240



OIL CONDITION

Visc @ 100°C	cSt	13.1	13.0	12.6	12.1
Base Number (BN)	mg KOH/g	8.4	8.1	7.5	7.7
Oxidation (PA)	%	47	49	45	42



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	1.2	1.5	1.2	0.6
Nitration (PA)	%	54	59	54	45
Sulfation (PA)	%	53	54	51	47
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	5	9	6	5
Sodium	ppm	1	3	2	<1
Potassium	ppm	4	2	2	1



WEAR METALS

Iron	ppm	6	14	10	4
Copper	ppm	2	2	2	<1
Lead	ppm	<1	0	<1	0
Tin	ppm	<1	0	<1	0
Aluminum	ppm	2	2	1	<1
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	37	40	33	28
Nickel	ppm	<1	0	<1	0
Titanium	ppm	6	9	4	4
Silver	ppm	0	0	0	0
Manganese	ppm	<1	0	<1	<1
Vanadium	ppm	<1	0	<1	0



ADDITIVES

Calcium	ppm	1328	1773	1467	1501
Magnesium	ppm	632	597	468	524
Zinc	ppm	1172	1380	1058	1172
Phosphorus	ppm	1007	1111	907	977
Barium	ppm	0	0	3	0
Boron	ppm	35	50	31	41

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: NILNIL

Unique No: 10869248

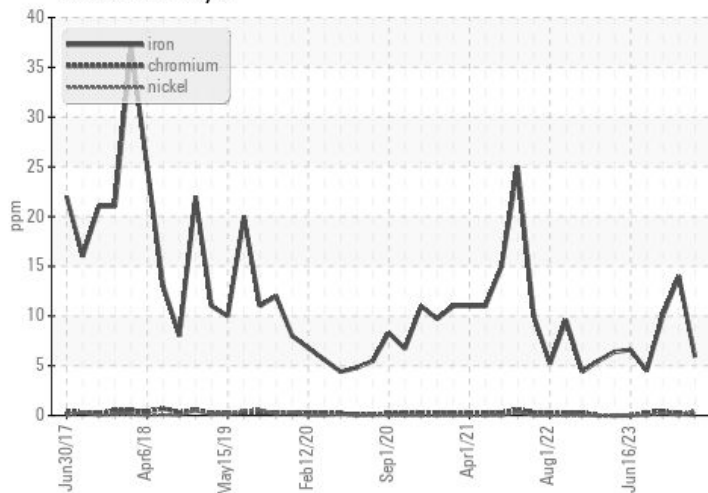
Signed: Wes Davis

Report Date: 07 Feb 2024

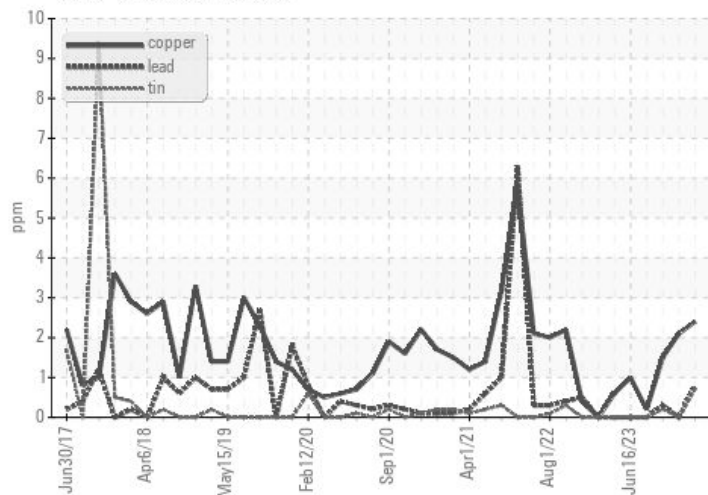


GRAPHS

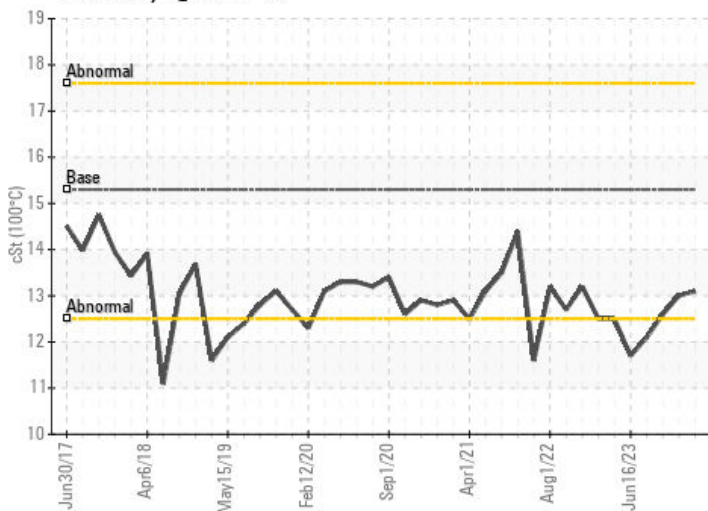
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

