

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR A944C032403-194 - Diesel Engine

Sample No: LH0273214

Oil Type: CONOCO PHILLIPS GUARDOL ECT 15W40



Sample Information

Sample Number	LH0273214	LH0273253	LH0244851	LH0244854
Sample Date	02 May 2024	05 Mar 2024	09 Jan 2024	30 Nov 2023
Machine Hours	34868	34555	34200	33998
Oil Hours	300	250	250	300
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

NILES IRON & METAL CO. INC.

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NILES, OH

US 44446

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Oil Condition

Visc @ 100°C	cSt	13.3	13.3	13.1	13.0
Base Number (BN)	mg KOH/g	7.9	7.9	8.4	8.1
Oxidation (PA)	%	52	51	47	49



Contamination

Water	%	NEG	NEG	NEG	NEG
Soot %	%	2.1	1.9	1.2	1.5
Nitration (PA)	%	73	65	54	59
Sulfation (PA)	%	60	57	53	54
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	6	5	5	9
Sodium	ppm	2	1	1	3
Potassium	ppm	4	<1	4	2



Wear Metals

Iron	ppm	13	12	6	14
Copper	ppm	2	3	2	2
Lead	ppm	<1	0	<1	0
Tin	ppm	<1	<1	<1	0
Aluminum	ppm	1	<1	2	2
Chromium	ppm	0	<1	<1	<1
Molybdenum	ppm	30	33	37	40
Nickel	ppm	0	0	<1	0
Titanium	ppm	9	9	6	9
Silver	ppm	0	0	0	0
Manganese	ppm	<1	<1	<1	0
Vanadium	ppm	<1	0	<1	0



Additives

Calcium	ppm	1481	1379	1328	1773
Magnesium	ppm	670	594	632	597
Zinc	ppm	1239	1141	1172	1380
Phosphorus	ppm	1055	990	1007	1111
Barium	ppm	0	0	0	0
Boron	ppm	50	34	35	50

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: 11050138

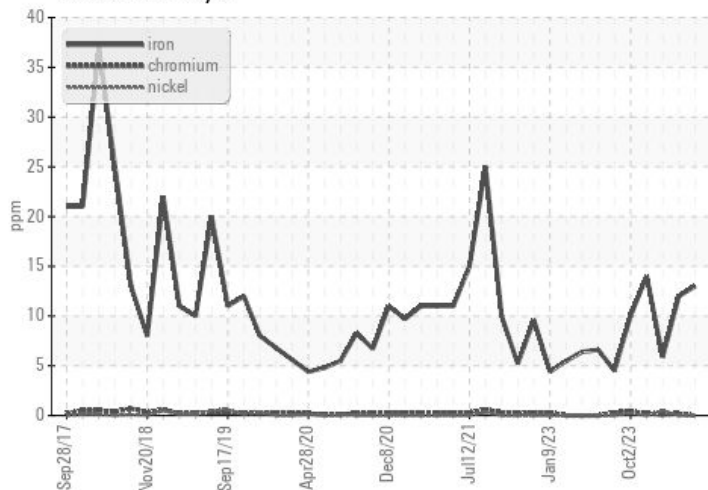
Signed: Wes Davis

Report Date: 30 May 2024

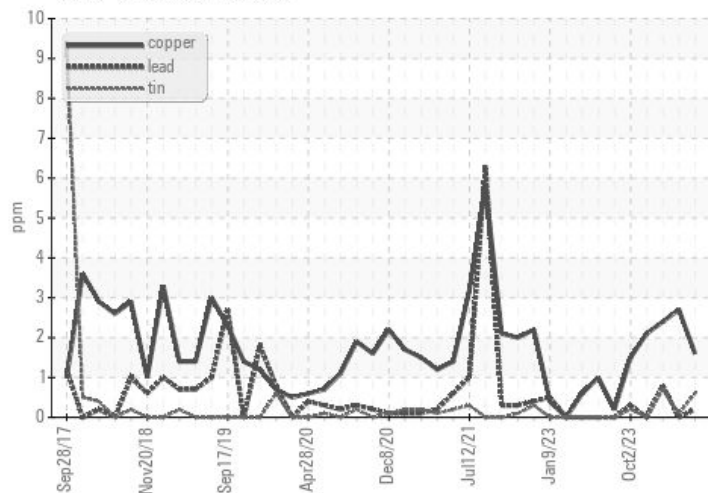


Graphs

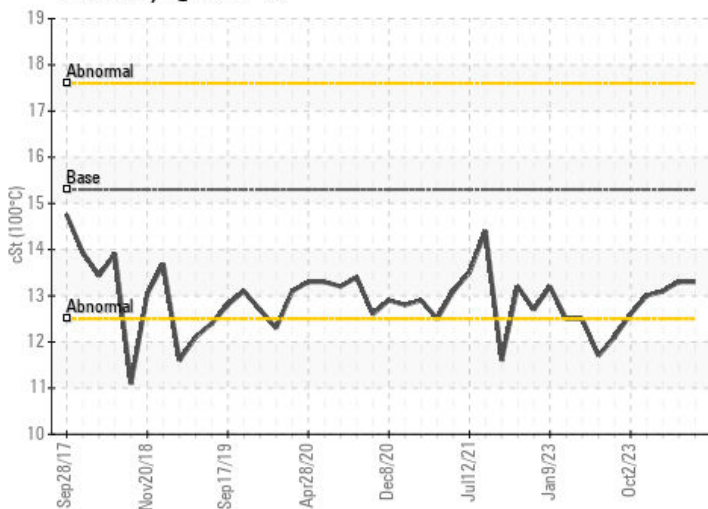
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

