

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR A944BHD 023921-744 - Diesel Engine

Sample No: LH0273278

Oil Type: CONOCO PHILLIPS GUARDOL ECT 15W40



Sample Information

Sample Number	LH0273278	LH0273250	LH0244847	LH0244659
Sample Date	06 May 2024	25 Jan 2024	28 Nov 2023	12 May 2023
Machine Hours	47083	46350	45917	45038
Oil Hours	300	250	300	250
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	ATTENTION	ATTENTION	ATTENTION	NORMAL

NILES IRON & METAL CO. INC.

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NILES, OH

US 44446

Contact: CRAIG STINSON

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Oil Condition

Visc @ 100°C	cSt	11.7	11.7	11.6	12.7
Base Number (BN)	mg KOH/g	8.6	8.2	8.6	8.5
Oxidation (PA)	%	60	64	60	59



Contamination

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.4	0.3	0.3	0.5
Nitration (PA)	%	74	73	68	75
Sulfation (PA)	%	55	54	53	55
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	1.1	<1.0
Silicon	ppm	7	8	9	8
Sodium	ppm	3	8	10	3
Potassium	ppm	1	3	2	3



Wear Metals

Iron	ppm	20	26	26	11
Copper	ppm	<1	5	6	0
Lead	ppm	1	1	<1	1
Tin	ppm	0	1	1	<1
Aluminum	ppm	1	2	2	3
Chromium	ppm	<1	<1	<1	1
Molybdenum	ppm	28	38	34	23
Nickel	ppm	0	<1	<1	<1
Titanium	ppm	8	7	9	12
Silver	ppm	<1	0	0	<1
Manganese	ppm	<1	1	<1	<1
Vanadium	ppm	0	<1	<1	0



Additives

Calcium	ppm	1682	1371	1657	1745
Magnesium	ppm	707	651	543	635
Zinc	ppm	1415	1205	1280	1356
Phosphorus	ppm	1159	1042	1069	1116
Barium	ppm	0	2	3	0
Boron	ppm	51	37	54	56

Diagnosis

Oil and filter 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 oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Depot: NILNIL

Unique No: 11050127

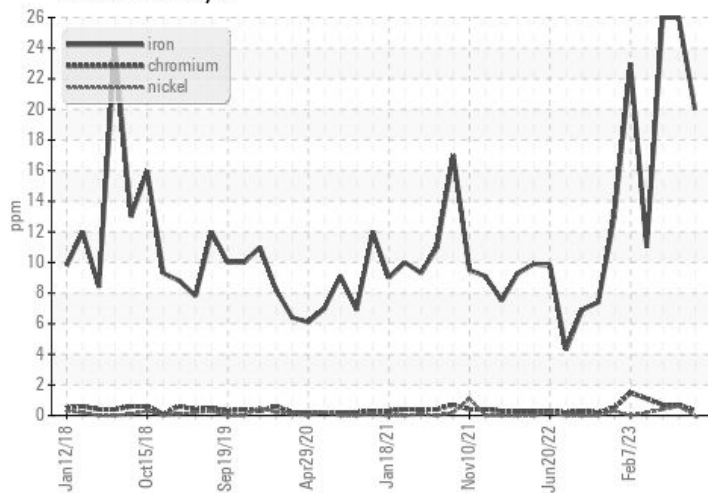
Signed: Sean Felton

Report Date: 30 May 2024

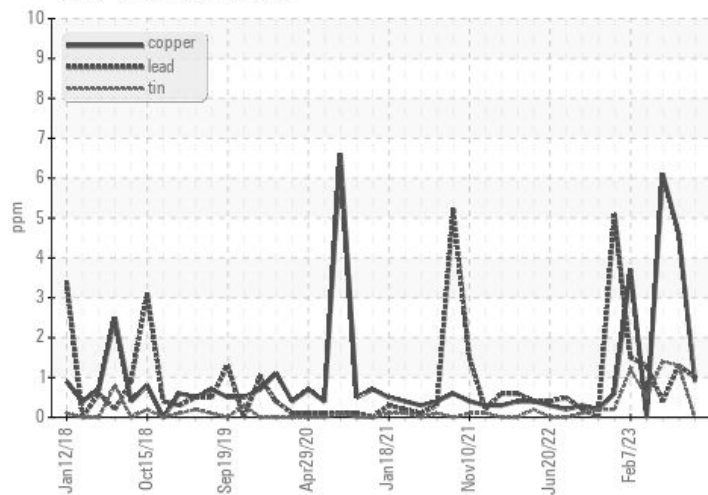


Graphs

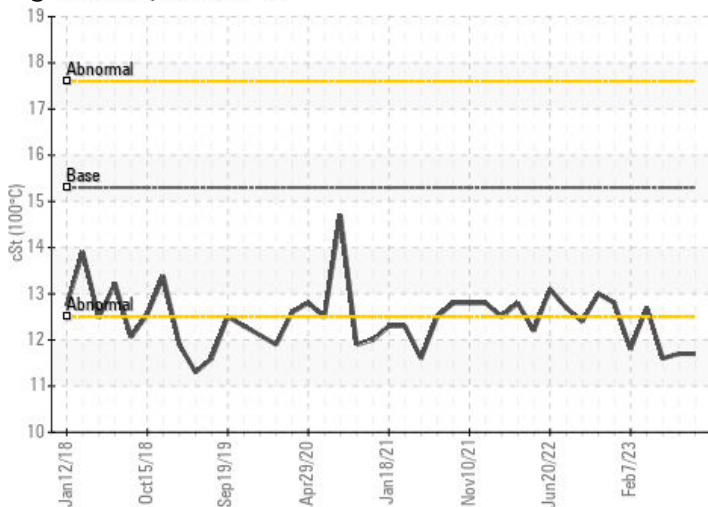
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

