

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR A944B 016166-744 - Diesel Engine

Sample No: LH0273277

Oil Type: CONOCO PHILLIPS GUARDOL ECT 15W40



Sample Information

Sample Number	LH0273277	LH0273208	LH0273249	LH0244857
Sample Date	03 May 2024	13 Mar 2024	11 Jan 2024	27 Nov 2023
Machine Hours	50152	49847	49427	49111
Oil Hours	300	250	250	300
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	ATTENTION	ATTENTION	ATTENTION	ATTENTION

NILES IRON & METAL CO. INC.

P.O. BOX 166

NILES, OH

US 44446

Contact: CRAIG STINSON

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Oil Condition

Visc @ 100°C	cSt	12.1	12.2	11.9	11.8
Base Number (BN)	mg KOH/g	8.7	8.0	8.4	8.6
Oxidation (PA)	%	50	54	51	53



Contamination

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.8	1.1	0.8	1
Nitration (PA)	%	63	73	62	67
Sulfation (PA)	%	53	56	53	54
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	7	8	6	6
Sodium	ppm	2	2	2	1
Potassium	ppm	3	3	4	1



Wear Metals

Iron	ppm	13	19	11	17
Copper	ppm	<1	1	2	1
Lead	ppm	<1	<1	1	<1
Tin	ppm	<1	<1	1	<1
Aluminum	ppm	2	3	3	2
Chromium	ppm	3	<1	<1	<1
Molybdenum	ppm	26	18	38	33
Nickel	ppm	0	<1	<1	<1
Titanium	ppm	8	4	7	8
Silver	ppm	0	0	0	0
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	<1	0	<1	<1



Additives

Calcium	ppm	1460	1465	1395	1618
Magnesium	ppm	675	732	658	541
Zinc	ppm	1231	1298	1226	1264
Phosphorus	ppm	1081	1184	1051	1069
Barium	ppm	0	0	0	0
Boron	ppm	66	60	35	42

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: 11050137

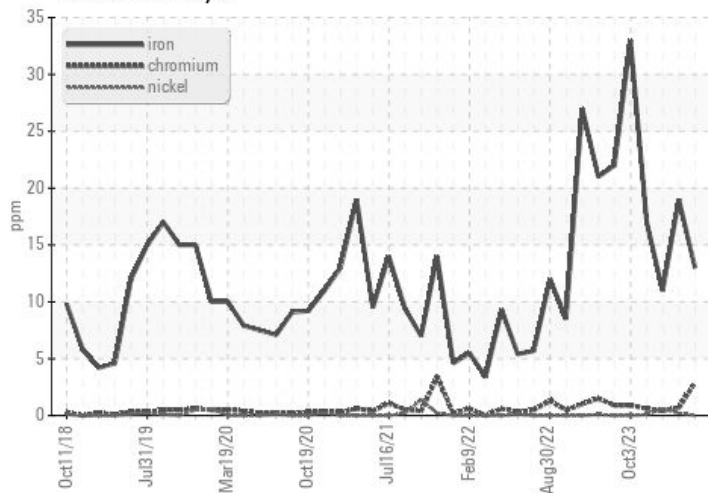
Signed: Sean Felton

Report Date: 30 May 2024

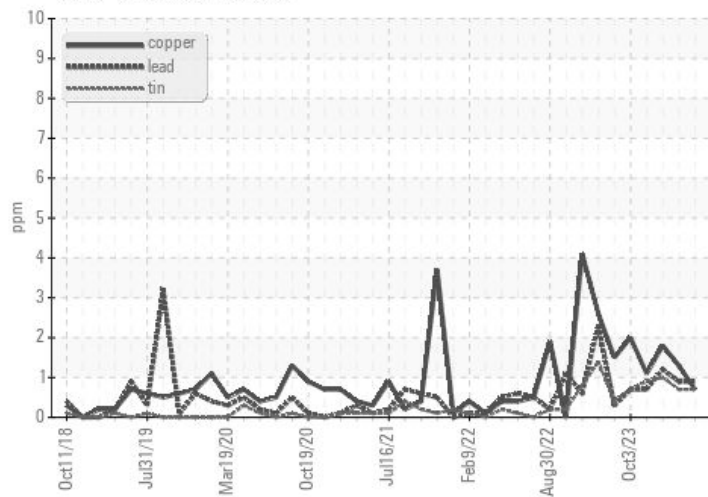


Graphs

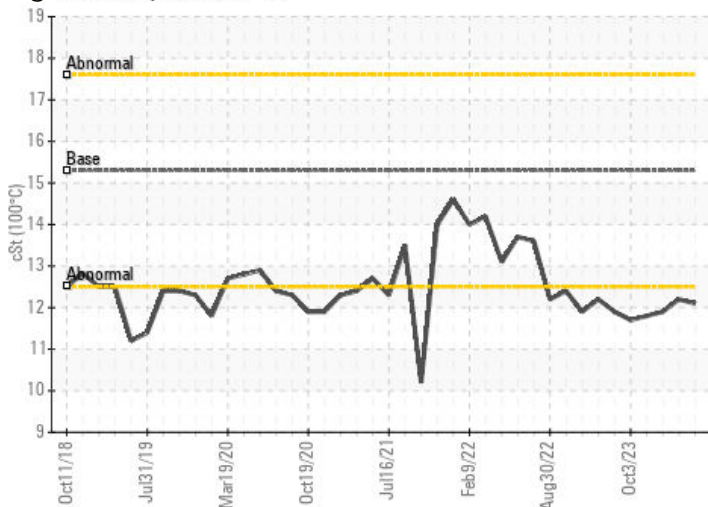
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

