

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR A944C032403-194 - Diesel Engine

Sample No: LH0244638

Oil Type: CONOCO PHILLIPS GUARDOL ECT 15W40



SAMPLE INFORMATION

Sample Number	LH0244638	LH0244641	LH0244660	LH0244653
Sample Date	02 Oct 2023	15 Aug 2023	16 Jun 2023	12 May 2023
Machine Hours	33776	33575	33276	33136
Oil Hours	300	300	300	250
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	ATTENTION	ATTENTION	NORMAL

NILES IRON & METAL CO. INC.

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US 44446

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OIL CONDITION

Visc @ 100°C	cSt	12.6	12.1	11.7	12.5
Base Number (BN)	mg KOH/g	7.5	7.7	6.5	7.6
Oxidation (PA)	%	45	42	45	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.



CONTAMINATION

Soot %	%	1.2	0.6	0.9	1.1
Nitration (PA)	%	54	45	51	55
Sulfation (PA)	%	51	47	49	52
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	0.5	<1.0
Silicon	ppm	6	5	4	3
Sodium	ppm	2	<1	0	2
Potassium	ppm	2	1	2	2



WEAR METALS

Iron	ppm	10	4	7	6
Copper	ppm	2	<1	1	<1
Lead	ppm	<1	0	0	0
Tin	ppm	<1	0	0	0
Aluminum	ppm	1	<1	2	<1
Chromium	ppm	<1	<1	0	0
Molybdenum	ppm	33	28	17	9
Nickel	ppm	<1	0	0	0
Titanium	ppm	4	4	13	6
Silver	ppm	0	0	0	0
Manganese	ppm	<1	<1	0	0
Vanadium	ppm	<1	0	0	0



ADDITIVES

Calcium	ppm	1467	1501	1220	1300
Magnesium	ppm	468	524	357	523
Zinc	ppm	1058	1172	982	1096
Phosphorus	ppm	907	977	841	890
Barium	ppm	3	0	0	0
Boron	ppm	31	41	48	53

Depot: NILNIL

Unique No: 10697424

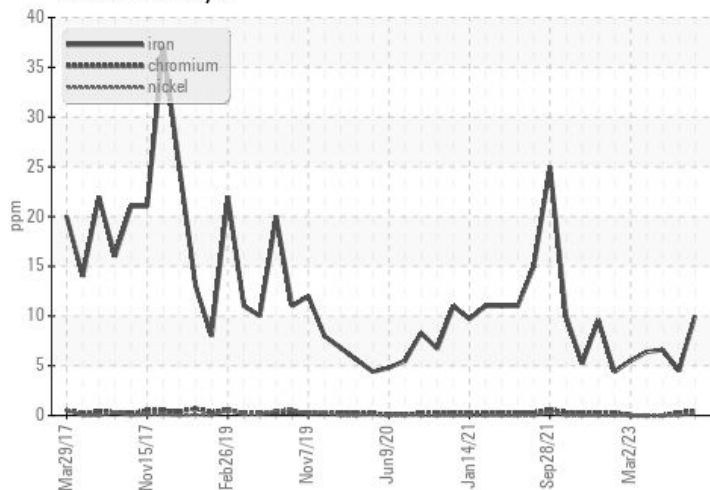
Signed: Wes Davis

Report Date: 17 Oct 2023

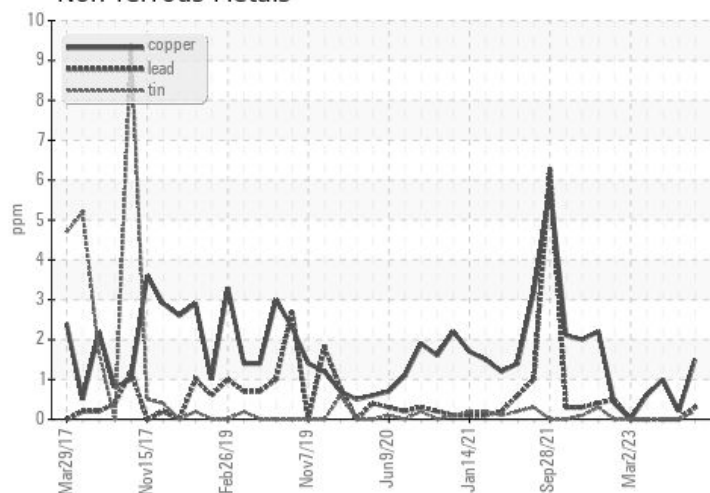


GRAPHS

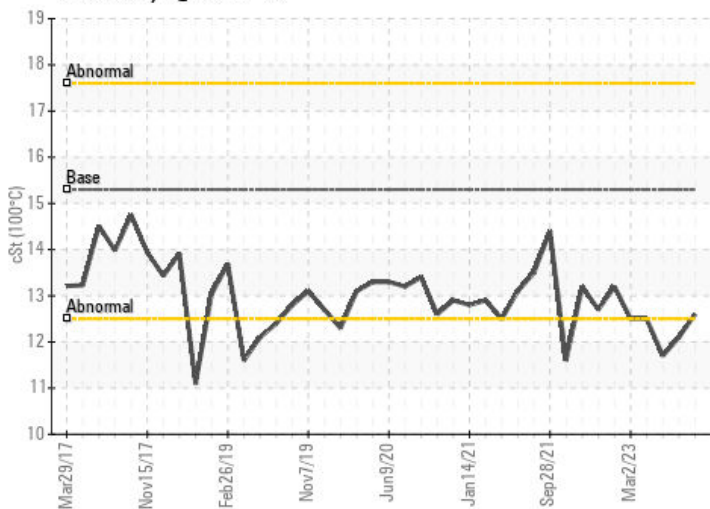
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

