

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR A954C 028291-450 - Diesel Engine

Sample No: LH0273248

Oil Type: CONOCO PHILLIPS GUARDOL ECT 15W40



SAMPLE INFORMATION

Sample Number	LH0273248	LH0244845	LH0244642	LH0207977
Sample Date	23 Jan 2024	28 Nov 2023	15 Aug 2023	20 Jun 2023
Machine Hours	27457	26569	25759	25303
Oil Hours	250	300	300	300
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	ABNORMAL	NORMAL

NILES IRON & METAL CO. INC.

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NILES, OH

US 44446

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OIL CONDITION

Visc @ 100°C	cSt	13.0	13.4	13.8	13.3
Base Number (BN)	mg KOH/g	7.1	7.2	7.4	9.8
Oxidation (PA)	%	52	54	52	55

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

Water	%	NEG	NEG	NEG	NEG
Soot %	%	1.1	1.5	1.3	0.5
Nitration (PA)	%	69	72	77	69
Sulfation (PA)	%	56	59	58	51
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	6	5	7	7
Sodium	ppm	3	3	15	19
Potassium	ppm	4	1	2	3



WEAR METALS

Iron	ppm	19	27	29	12
Copper	ppm	25	89	515	12
Lead	ppm	<1	<1	<1	2
Tin	ppm	<1	1	1	1
Aluminum	ppm	2	1	1	3
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	32	25	11	19
Nickel	ppm	<1	<1	0	0
Titanium	ppm	6	7	8	15
Silver	ppm	0	0	0	0
Manganese	ppm	1	<1	1	1
Vanadium	ppm	<1	<1	0	0



ADDITIVES

Calcium	ppm	1379	1593	1782	2296
Magnesium	ppm	679	617	668	349
Zinc	ppm	1247	1326	1346	1151
Phosphorus	ppm	1078	1071	1098	1017
Barium	ppm	<1	1	14	47
Boron	ppm	26	29	42	106

Depot: NILNIL

Unique No: 10869250

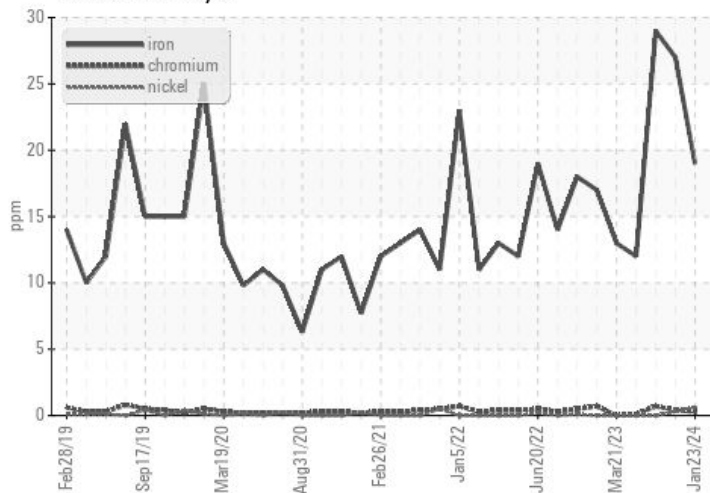
Signed: Wes Davis

Report Date: 07 Feb 2024

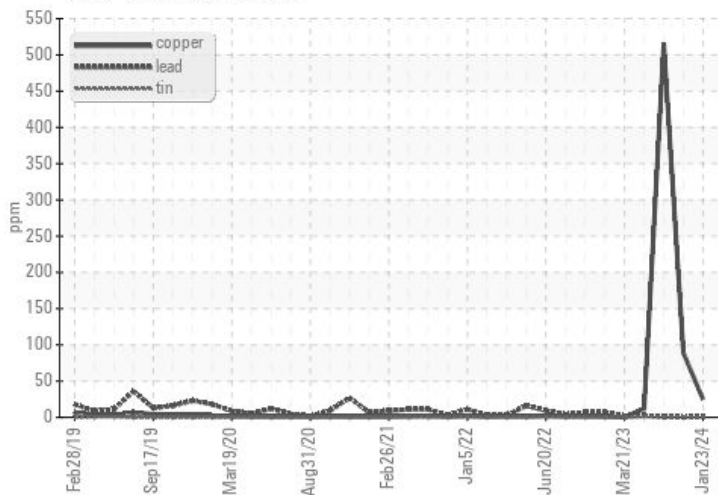


GRAPHS

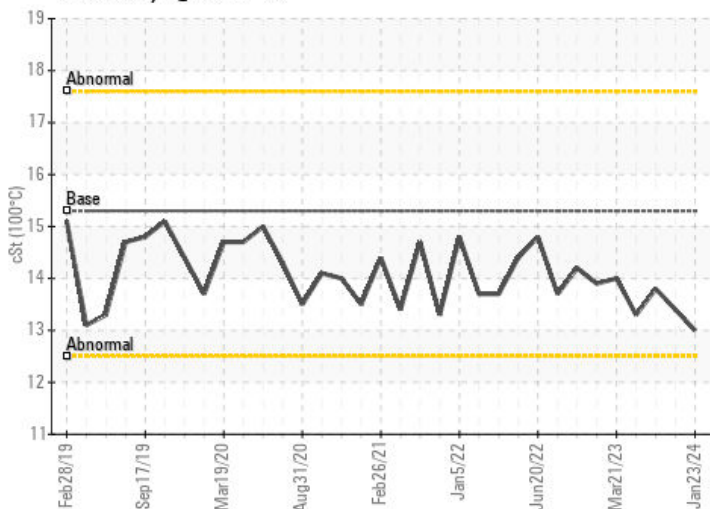
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

