

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR A944CHD 051846-194 - Diesel Engine

Sample No: LH0207978

Oil Type: CONOCO PHILLIPS GUARDOL ECT 15W40



SAMPLE INFORMATION

Sample Number	LH0207978	LH0244655	LH0244524	LH0244526
Sample Date	19 Jun 2023	11 May 2023	21 Mar 2023	07 Feb 2023
Machine Hours	31579	31320	30908	30610
Oil Hours	300	250	300	400
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

NILES IRON & METAL CO. INC.

P.O. BOX 166

NILES, OH

US 44446

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OIL CONDITION

Visc @ 100°C	cSt	13.4	13.4	12.7	12.6
Base Number (BN)	mg KOH/g	8.2	7.6	7.7	7.3
Oxidation (PA)	%	52	51	49	54

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 %	%	1.4	1.8	1.3	1.6
Nitration (PA)	%	69	84	67	73
Sulfation (PA)	%	57	59	54	57
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	7	7	6	5
Sodium	ppm	2	3	2	2
Potassium	ppm	4	4	<1	3



WEAR METALS

Iron	ppm	12	17	12	16
Copper	ppm	<1	<1	0	<1
Lead	ppm	<1	1	0	<1
Tin	ppm	<1	<1	0	<1
Aluminum	ppm	1	2	<1	<1
Chromium	ppm	<1	<1	0	<1
Molybdenum	ppm	23	22	34	41
Nickel	ppm	0	0	0	0
Titanium	ppm	19	16	3	5
Silver	ppm	0	<1	0	0
Manganese	ppm	<1	1	<1	1
Vanadium	ppm	<1	0	0	0



ADDITIVES

Calcium	ppm	1866	1742	1652	1814
Magnesium	ppm	594	703	525	474
Zinc	ppm	1373	1466	1250	1249
Phosphorus	ppm	1145	1213	1018	988
Barium	ppm	0	0	0	0
Boron	ppm	52	56	22	13

Depot: NILNIL

Unique No: 10560554

Signed: Wes Davis

Report Date: 17 Jul 2023



GRAPHS

