

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR A954 028291-450 - Diesel Engine

Sample No: LH0207977

Oil Type: CONOCO PHILLIPS GUARDOL ECT 15W40



SAMPLE INFORMATION

Sample Number	LH0207977	LH0244532	LH0244528	LH0244381
Sample Date	20 Jun 2023	21 Mar 2023	08 Feb 2023	16 Dec 2022
Machine Hours	25303	24798	24500	24087
Oil Hours	300	300	300	300
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

Contact: CRAIG STINSON

cstinson529@gmail.com;canastasio@wearcheckusa.com

T: (330)652-2262

F: (330)652-1240



OIL CONDITION

Visc @ 100°C	cSt	13.3	14.0	13.9	14.2
Base Number (BN)	mg KOH/g	9.8	7.1	6.7	6.9
Oxidation (PA)	%	55	71	82	78

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 %	%	0.5	0.9	1	1.1
Nitration (PA)	%	69	88	96	95
Sulfation (PA)	%	51	64	69	70
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	7	5	5	5
Sodium	ppm	19	6	3	2
Potassium	ppm	3	5	3	2



WEAR METALS

Iron	ppm	12	13	17	18
Copper	ppm	12	0	1	1
Lead	ppm	2	2	7	7
Tin	ppm	1	0	<1	<1
Aluminum	ppm	3	<1	<1	<1
Chromium	ppm	<1	0	<1	<1
Molybdenum	ppm	19	31	43	26
Nickel	ppm	0	0	0	<1
Titanium	ppm	15	3	5	8
Silver	ppm	0	0	0	0
Manganese	ppm	1	<1	1	<1
Vanadium	ppm	0	0	0	<1



ADDITIVES

Calcium	ppm	2296	1719	1978	1746
Magnesium	ppm	349	604	558	681
Zinc	ppm	1151	1338	1400	1385
Phosphorus	ppm	1017	1080	1091	1111
Barium	ppm	47	0	0	0
Boron	ppm	106	28	18	29

Depot: NILNIL

Unique No: 10559221

Signed: Jonathan Hester

Report Date: 17 Jul 2023



GRAPHS

