

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR 24459 - Diesel Engine

Sample No: LH0220486

Oil Type: LIEBHERR MOTOROIL 10W-40 LOW ASH



SAMPLE INFORMATION

Sample Number	LH0220486	LH0220483	---	---
Sample Date	28 Apr 2023	23 Mar 2023	---	---
Machine Hours	936	464	---	---
Oil Hours	936	464	---	---
Oil Changed	Changed	Not Changd	---	---
Sample Status	ABNORMAL	ATTENTION	---	---

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OIL CONDITION

Visc @ 100°C	cSt	● 11.4	● 11.7	---	---
Base Number (BN)	mg KOH/g	● 3.4	● 5.5	---	---
Oxidation (PA)	%	192	187	---	---

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. Fuel content negligible. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN level is low. Confirm oil type.



CONTAMINATION

Soot %	%	● 0.1	● 0.1	---	---
Nitration (PA)	%	88	86	---	---
Sulfation (PA)	%	99	103	---	---
Glycol	%	NEG	NEG	---	---
Fuel	%	● 1.6	● 1.6	---	---
Silicon	ppm	● 17	● 18	---	---
Sodium	ppm	● 0	● 2	---	---
Potassium	ppm	● 3	● 3	---	---



WEAR METALS

Iron	ppm	● 21	● 16	---	---
Copper	ppm	● 80	● 61	---	---
Lead	ppm	● 2	● 1	---	---
Tin	ppm	● 1	● 1	---	---
Aluminum	ppm	● <1	● 2	---	---
Chromium	ppm	● <1	● 0	---	---
Molybdenum	ppm	● 43	● 45	---	---
Nickel	ppm	● 0	● 0	---	---
Titanium	ppm	<1	0	---	---
Silver	ppm	● 0	● 0	---	---
Manganese	ppm	● 4	● 5	---	---
Vanadium	ppm	0	0	---	---



ADDITIVES

Calcium	ppm	● 1370	● 1532	---	---
Magnesium	ppm	● 805	978	---	---
Zinc	ppm	● 826	● 1002	---	---
Phosphorus	ppm	● 632	● 774	---	---
Barium	ppm	● 11	● 0	---	---
Boron	ppm	● 94	● 119	---	---

Depot: LIEGIL
 Unique No: 10457133
 Signed: Don Baldrige
 Report Date: 08 May 2023



GRAPHS

