

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR LH40 ML13 - Diesel Engine

Sample No: LHMC122828

Oil Type: DIESEL ENGINE OIL SAE 15W40



#### SAMPLE INFORMATION

Sample Number		LHMC122828	LHMC103190	LHMC131392	---
Sample Date		04 Aug 2023	11 May 2023	12 Dec 2022	---
Machine Hours		12105	11583	10732	---
Oil Hours		0	0	500	---
Oil Changed		Changed	Changed	N/A	---
Sample Status		ATTENTION	ABNORMAL	ATTENTION	---

OSCAR WINSKI CO. INC

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#### OIL CONDITION

Visc @ 100°C	cSt	11.6	12.4	11.83	---
Base Number (BN)	mg KOH/g	6.5	7.7	9.8	---
Oxidation (PA)	%	98	74	94	---

#### Diagnosis

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor. All component wear rates are normal. Light fuel dilution occurring. No other contaminants were detected in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity.



#### CONTAMINATION

Soot %	%	0.1	0.1	0.1	---
Nitration (PA)	%	103	81	91	---
Sulfation (PA)	%	57	55	57	---
Glycol	%	NEG	NEG	NEG	---
Fuel	%	2.1	<1.0	1.7	---
Silicon	ppm	7	8	7	---
Sodium	ppm	5	11	6	---
Potassium	ppm	16	13	18	---



#### WEAR METALS

Iron	ppm	7	8	6	---
Copper	ppm	34	156	6	---
Lead	ppm	<1	3	1	---
Tin	ppm	<1	<1	<1	---
Aluminum	ppm	1	0	<1	---
Chromium	ppm	0	0	<1	---
Molybdenum	ppm	9	53	4	---
Nickel	ppm	0	0	<1	---
Titanium	ppm	<1	<1	<1	---
Silver	ppm	0	<1	<1	---
Manganese	ppm	<1	<1	<1	---
Vanadium	ppm	<1	0	0	---



#### ADDITIVES

Calcium	ppm	2197	1389	2352	---
Magnesium	ppm	193	867	158	---
Zinc	ppm	844	1216	864	---
Phosphorus	ppm	703	950	768	---
Barium	ppm	0	0	0	---
Boron	ppm	1	8	11	---

Depot: OSCLAF

Unique No: 10615391

Signed: Sean Felton

Report Date: 23 Aug 2023



### GRAPHS

