

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR L586 028643 - Diesel Engine

Sample No: LH0273338

Oil Type: DIESEL ENGINE OIL SAE 5W40



#### Sample Information

Sample Number	LH0273338	---	---	---
Sample Date	28 Mar 2024	---	---	---
Machine Hours	21137	---	---	---
Oil Hours	500	---	---	---
Oil Changed	Changed	---	---	---
Sample Status	ABNORMAL	---	---	---

**MIDDLE RIVER MARINE**  
 1771 SOUTH TORRENCE AVE  
 CHICAGO, IL  
 US 60617  
 Contact: Scott Molitor  
 scottmolitor@gomiddleriver.com  
 T:  
 F:



#### Oil Condition

Visc @ 100°C	cSt	● 13.3	---	---	---
Base Number (BN)	mg KOH/g	● 8.2	---	---	---
Oxidation (PA)	%	55	---	---	---



#### Contamination

Water	%	NEG	---	---	---
Soot %	%	● 0.3	---	---	---
Nitration (PA)	%	73	---	---	---
Sulfation (PA)	%	51	---	---	---
Glycol	%	NEG	---	---	---
Fuel	%	<1.0	---	---	---
Silicon	ppm	● 9	---	---	---
Sodium	ppm	● 112	---	---	---
Potassium	ppm	● 17	---	---	---

#### 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. Sodium and/or potassium levels are high. Test for glycol is negative. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.



#### Wear Metals

Iron	ppm	● 6	---	---	---
Copper	ppm	● 9	---	---	---
Lead	ppm	● 2	---	---	---
Tin	ppm	● <1	---	---	---
Aluminum	ppm	● 3	---	---	---
Chromium	ppm	● <1	---	---	---
Molybdenum	ppm	● 35	---	---	---
Nickel	ppm	● <1	---	---	---
Titanium	ppm	● 1	---	---	---
Silver	ppm	● <1	---	---	---
Manganese	ppm	● <1	---	---	---
Vanadium	ppm	<1	---	---	---



#### Additives

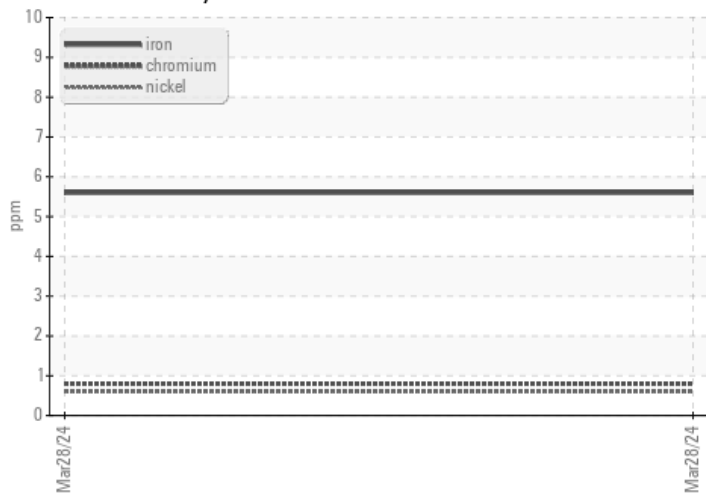
Calcium	ppm	● 1258	---	---	---
Magnesium	ppm	● 716	---	---	---
Zinc	ppm	● 909	---	---	---
Phosphorus	ppm	● 771	---	---	---
Barium	ppm	● 0	---	---	---
Boron	ppm	● 36	---	---	---

**Depot:** MIDCHIL  
**Unique No:** 11113425  
**Signed:** Jonathan Hester  
**Report Date:** 10 Jul 2024

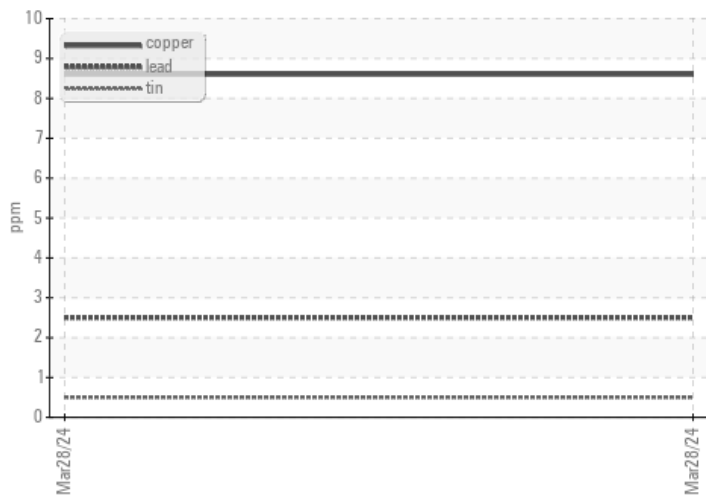


### Graphs

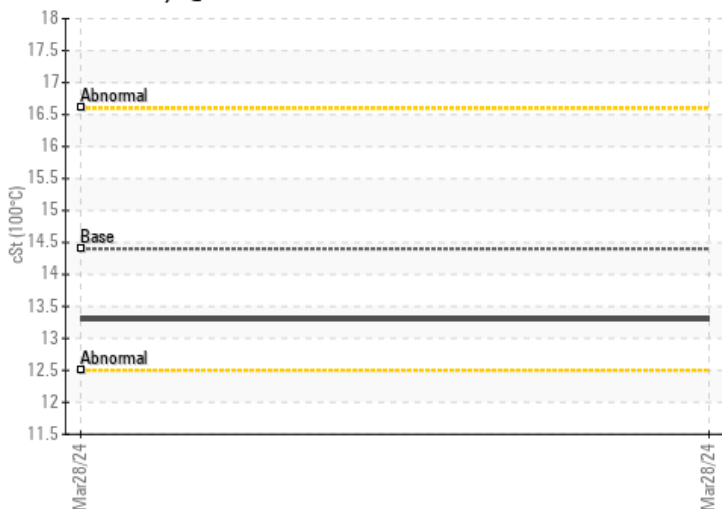
#### Ferrous Alloys



#### Non-ferrous Metals



#### Viscosity @ 100°C



#### Base Number

