

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR R930 049615-1716 - Diesel Engine

Sample No: LH0243963

Oil Type: LIEBHERR MOTOROIL 10W-40 LOW ASH



ACECO
10119 RESIDENCY ROAD
MANASSAS, VA
US 20110
Contact: RON BROCK

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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. Elemental level of silicon (Si) above normal indicating ingress of seal material. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.



SAMPLE INFORMATION

Sample Number	LH0243963	LH0183115	---	---
Sample Date	12 Jun 2023	02 Oct 2020	---	---
Machine Hours	1685	522	---	---
Oil Hours	1685	522	---	---
Oil Changed	Changed	Not Changd	---	---
Sample Status	ABNORMAL	ABNORMAL	---	---



OIL CONDITION

Visc @ 100°C	cSt	● 11.8	● 11.9	---	---
Base Number (BN)	mg KOH/g	● 5.3	---	---	---
Oxidation (PA)	%	176	167	---	---



CONTAMINATION

Soot %	%	● 0.1	● 0.1	---	---
Nitration (PA)	%	102	85	---	---
Sulfation (PA)	%	99	96	---	---
Glycol	%	NEG	NEG	---	---
Fuel	%	● 0.6	<1.0	---	---
Silicon	ppm	● 67	● 11	---	---
Sodium	ppm	● 5	● 3	---	---
Potassium	ppm	● <1	● 0	---	---



WEAR METALS

Iron	ppm	● 28	● 12	---	---
Copper	ppm	● 40	● 337	---	---
Lead	ppm	● 0	● 0	---	---
Tin	ppm	● <1	● 1	---	---
Aluminum	ppm	● 3	● 3	---	---
Chromium	ppm	● <1	● 2	---	---
Molybdenum	ppm	● 39	● 43	---	---
Nickel	ppm	● 0	● <1	---	---
Titanium	ppm	<1	<1	---	---
Silver	ppm	● 0	0	---	---
Manganese	ppm	● 4	● 1	---	---
Vanadium	ppm	0	0	---	---



ADDITIVES

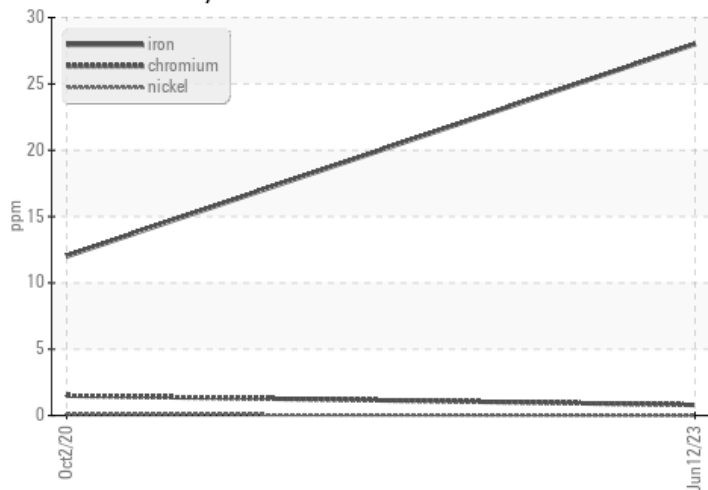
Calcium	ppm	● 1840	● 1331	---	---
Magnesium	ppm	● 798	● 900	---	---
Zinc	ppm	● 1001	● 844	---	---
Phosphorus	ppm	● 771	● 706	---	---
Barium	ppm	● 5	● 21	---	---
Boron	ppm	● 84	● 87	---	---

Depot: ACEMAN
Unique No: 10635625
Signed: Jonathan Hester
Report Date: 12 Sep 2023

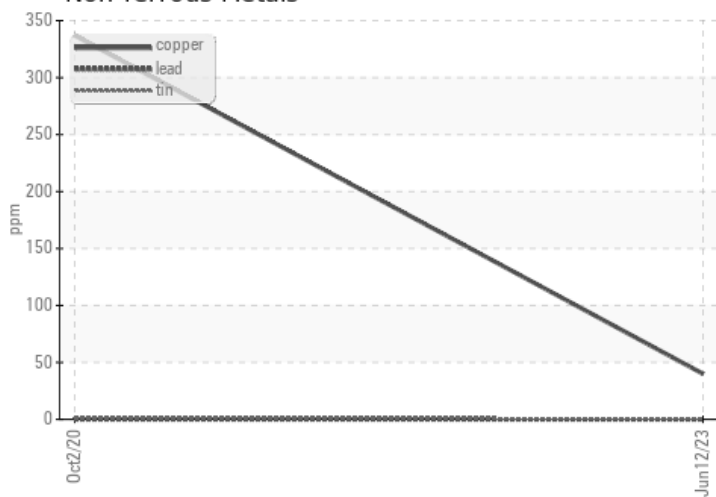


GRAPHS

Ferrous Alloys



Non-ferrous Metals



● Viscosity @ 100°C



Base Number

