

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR 123917 - Diesel Engine

Sample No: LH0254159

Oil Type: LIEBHERR MOTOROIL 5W-30 LOW ASH



SAMPLE INFORMATION

Sample Number	LH0254159	LH0203871	---	---
Sample Date	17 Aug 2023	03 Nov 2021	---	---
Machine Hours	4280	1542	---	---
Oil Hours	2	0	---	---
Oil Changed	Changed	Changed	---	---
Sample Status	ATTENTION	MARGINAL	---	---

HEAVY MACHINES INC
 825 31ST STREET NORTH
 BIRMINGHAM, AL
 US 35203
 Contact: CHRIS MCANNALLY
 cmcannally@heavymachines.com
 T:
 F:



OIL CONDITION

Visc @ 100°C	cSt	14.29	11.5	---	---
Base Number (BN)	mg KOH/g	8.9	13.2	---	---
Oxidation (PA)	%	63	71	---	---

Diagnosis

Resample at the next service interval to monitor. NOTE: one of two samples received with same ID and sampling date. All component wear rates are normal. There is no indication of any contamination in the oil. The oil viscosity is higher than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.



CONTAMINATION

Soot %	%	0	0.1	---	---
Nitration (PA)	%	44	130	---	---
Sulfation (PA)	%	55	55	---	---
Glycol	%	NEG	NEG	---	---
Fuel	%	<1.0	2.3	---	---
Silicon	ppm	6	10	---	---
Sodium	ppm	2	2	---	---
Potassium	ppm	10	7	---	---



WEAR METALS

Iron	ppm	2	16	---	---
Copper	ppm	2	20	---	---
Lead	ppm	0	1	---	---
Tin	ppm	<1	<1	---	---
Aluminum	ppm	0	3	---	---
Chromium	ppm	0	1	---	---
Molybdenum	ppm	1	6	---	---
Nickel	ppm	0	0	---	---
Titanium	ppm	<1	<1	---	---
Silver	ppm	0	<1	---	---
Manganese	ppm	<1	<1	---	---
Vanadium	ppm	<1	0	---	---



ADDITIVES

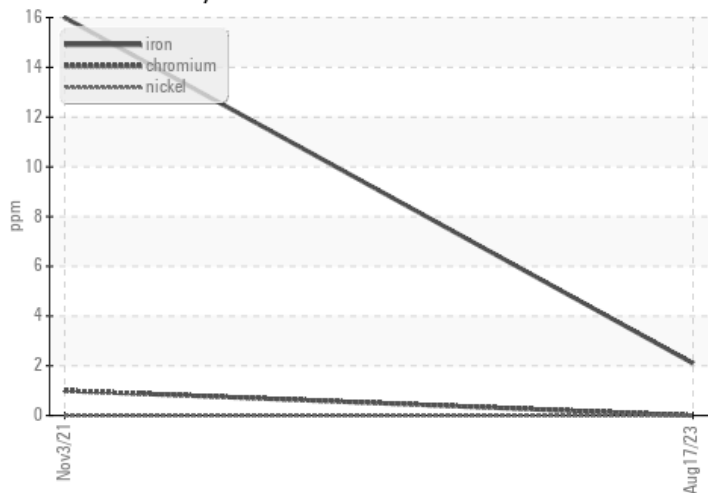
Calcium	ppm	2011	4186	---	---
Magnesium	ppm	116	104	---	---
Zinc	ppm	1098	1178	---	---
Phosphorus	ppm	924	1003	---	---
Barium	ppm	0	0	---	---
Boron	ppm	196	188	---	---

Depot: HEABIRLH
 Unique No: 10609083
 Signed: Doug Bogart
 Report Date: 21 Aug 2023

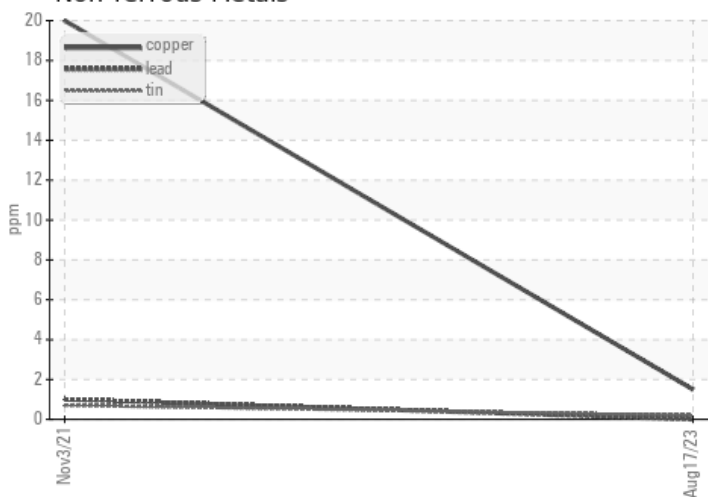


GRAPHS

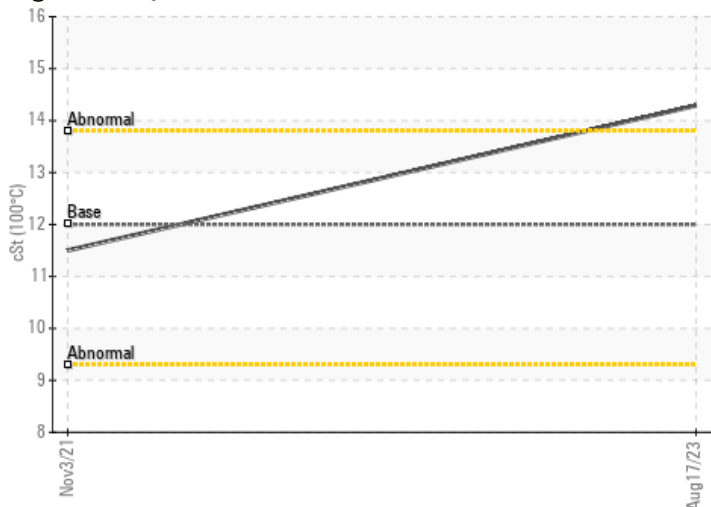
Ferrous Alloys



Non-ferrous Metals



● Viscosity @ 100°C



Base Number

