

LIEBHERR

CONSTRUCTION EQUIPMENT



[[SEAGATE TERMINALS]] - Diesel Engine

Sample No: LH0273459

Oil Type: LIEBHERR MOTOROIL 5W30



Sample Information

Sample Number	LH0273459	LH0200583	---	---
Sample Date	10 May 2024	02 Mar 2022	---	---
Machine Hours	1901	415	---	---
Oil Hours	0	415	---	---
Oil Changed	Changed	Not Changd	---	---
Sample Status	ABNORMAL	ABNORMAL	---	---

LIEBHERR EQUIPMENT SOURCE

10119 RESIDENCY ROAD
MANASSAS, VA
US 20110
Contact: TOM HEINEY
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T: (703)392-0111
F: (703)331-5604



Oil Condition

Visc @ 100°C	cSt	11.8	12.0	---	---
Base Number (BN)	mg KOH/g	7.0	5.6	---	---
Oxidation (PA)	%	85	183	---	---



Contamination

Water	%	NEG	NEG	---	---
Soot %	%	0.3	0.1	---	---
Nitration (PA)	%	78	94	---	---
Sulfation (PA)	%	61	104	---	---
Glycol	%	NEG	NEG	---	---
Fuel	%	<1.0	<1.0	---	---
Silicon	ppm	13	9	---	---
Sodium	ppm	4	3	---	---
Potassium	ppm	12	4	---	---



Wear Metals

Iron	ppm	35	12	---	---
Copper	ppm	166	176	---	---
Lead	ppm	8	4	---	---
Tin	ppm	3	1	---	---
Aluminum	ppm	3	<1	---	---
Chromium	ppm	2	<1	---	---
Molybdenum	ppm	33	41	---	---
Nickel	ppm	<1	0	---	---
Titanium	ppm	1	<1	---	---
Silver	ppm	1	0	---	---
Manganese	ppm	2	1	---	---
Vanadium	ppm	<1	0	---	---



Additives

Calcium	ppm	1372	1385	---	---
Magnesium	ppm	857	901	---	---
Zinc	ppm	881	854	---	---
Phosphorus	ppm	723	705	---	---
Barium	ppm	15	0	---	---
Boron	ppm	39	84	---	---

Diagnosis

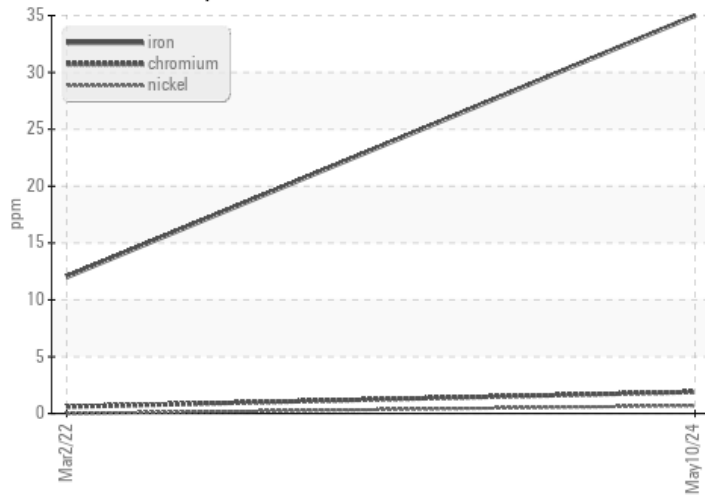
The oil change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor. The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal. There is no indication of any contamination in the oil. 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.

Depot: LIEBHERRVA
Unique No: 11044145
Signed: Don Baldrige
Report Date: 24 May 2024

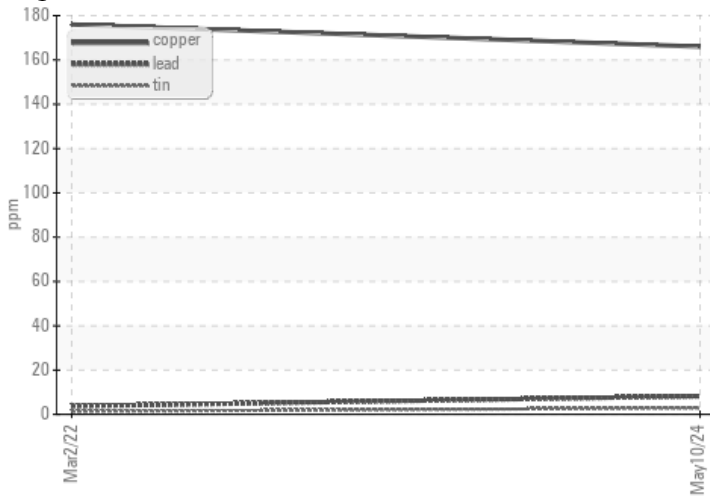


Graphs

Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

