

LIEBHERR

CONSTRUCTION EQUIPMENT



MS20 - Diesel Engine

Sample No: LH0244825

Oil Type: DIESEL ENGINE OIL SAE 40



SAMPLE INFORMATION

Sample Number	LH0244825	LH0244841	---	---
Sample Date	09 Mar 2024	14 Dec 2023	---	---
Machine Hours	4046	3388	---	---
Oil Hours	500	0	---	---
Oil Changed	N/A	Changed	---	---
Sample Status	NORMAL	NORMAL	---	---

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OIL CONDITION

Visc @ 100°C	cSt	13.1	13.4	---	---
Base Number (BN)	mg KOH/g	7.6	6.0	---	---
Oxidation (PA)	%	59	75	---	---

Diagnosis

Resample at the next service interval to monitor. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample. All 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 suitable for further service.



CONTAMINATION

Water	%	NEG	NEG	---	---
Soot %	%	0.3	0.7	---	---
Nitration (PA)	%	63	78	---	---
Sulfation (PA)	%	53	61	---	---
Glycol	%	NEG	NEG	---	---
Fuel	%	<1.0	<1.0	---	---
Silicon	ppm	3	6	---	---
Sodium	ppm	2	7	---	---
Potassium	ppm	0	2	---	---



WEAR METALS

Iron	ppm	14	27	---	---
Copper	ppm	2	2	---	---
Lead	ppm	0	0	---	---
Tin	ppm	<1	0	---	---
Aluminum	ppm	<1	2	---	---
Chromium	ppm	<1	<1	---	---
Molybdenum	ppm	59	82	---	---
Nickel	ppm	0	0	---	---
Titanium	ppm	0	0	---	---
Silver	ppm	0	0	---	---
Manganese	ppm	<1	<1	---	---
Vanadium	ppm	0	0	---	---



ADDITIVES

Calcium	ppm	1167	2300	---	---
Magnesium	ppm	895	508	---	---
Zinc	ppm	1242	1615	---	---
Phosphorus	ppm	1016	1149	---	---
Barium	ppm	0	0	---	---
Boron	ppm	8	56	---	---

Depot: OSCLAF

Unique No: 10939710

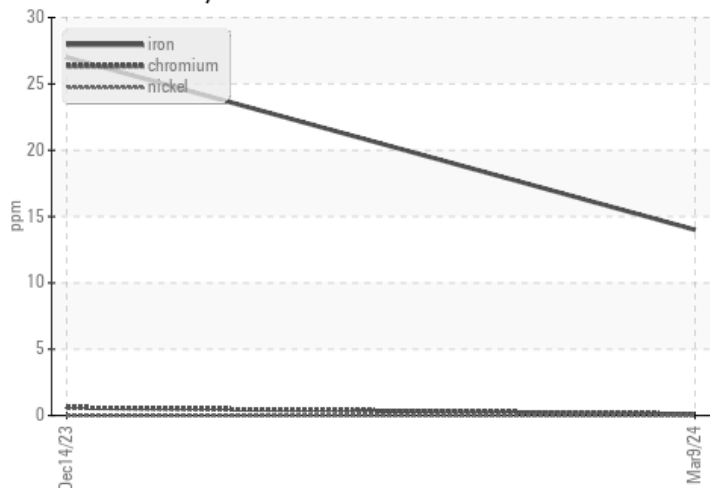
Signed: Wes Davis

Report Date: 22 Mar 2024

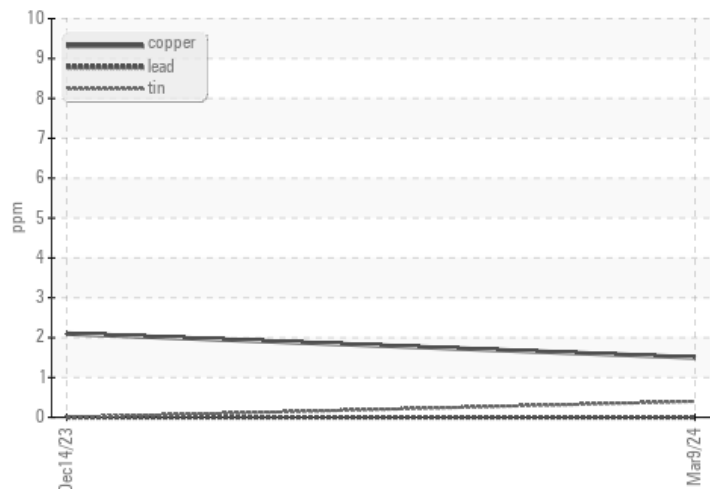


GRAPHS

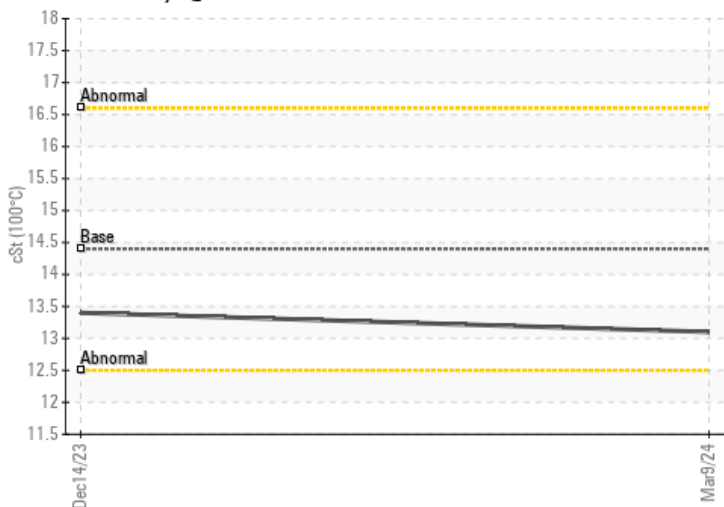
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

