

LIEBHERR

CONSTRUCTION EQUIPMENT



[[HAWAIIAN CEMENT]] LIEBHERR R9150B 45.1992301 (S/N 38178) - Diesel Engine

Sample No: LH0267630

Oil Type: CHEVRON Delo 600 ADF 15W40



SAMPLE INFORMATION

Sample Number	LH0267630	---	---	---
Sample Date	04 Dec 2023	---	---	---
Machine Hours	424	---	---	---
Oil Hours	324	---	---	---
Oil Changed	Changed	---	---	---
Sample Status	ABNORMAL	---	---	---

LIEBHERR MINING EQUIPMENT CO
 5800 S DOUGLAS HWY
 GILLETTE, WY
 US 82718
 Contact: SCOTT BRADLEY
 scott.bradley@liebherr.com
 T:
 F:



OIL CONDITION

Visc @ 100°C	cSt	● 13.3	---	---	---
Base Number (BN)	mg KOH/g	● 3.9	---	---	---
Oxidation (PA)	%	● 90	---	---	---

Diagnosis

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. Metal levels are typical for a new component breaking in. 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.



CONTAMINATION

Water	%	NEG	---	---	---
Soot %	%	● 0.1	---	---	---
Nitration (PA)	%	● 62	---	---	---
Sulfation (PA)	%	● 59	---	---	---
Glycol	%	NEG	---	---	---
Fuel	%	<1.0	---	---	---
Silicon	ppm	● 13	---	---	---
Sodium	ppm	● 2	---	---	---
Potassium	ppm	● 385	---	---	---



WEAR METALS

Iron	ppm	● 7	---	---	---
Copper	ppm	● 8	---	---	---
Lead	ppm	● 0	---	---	---
Tin	ppm	● 0	---	---	---
Aluminum	ppm	● 9	---	---	---
Chromium	ppm	● <1	---	---	---
Molybdenum	ppm	● 934	---	---	---
Nickel	ppm	● <1	---	---	---
Titanium	ppm	<1	---	---	---
Silver	ppm	● 0	---	---	---
Manganese	ppm	<1	---	---	---
Vanadium	ppm	0	---	---	---



ADDITIVES

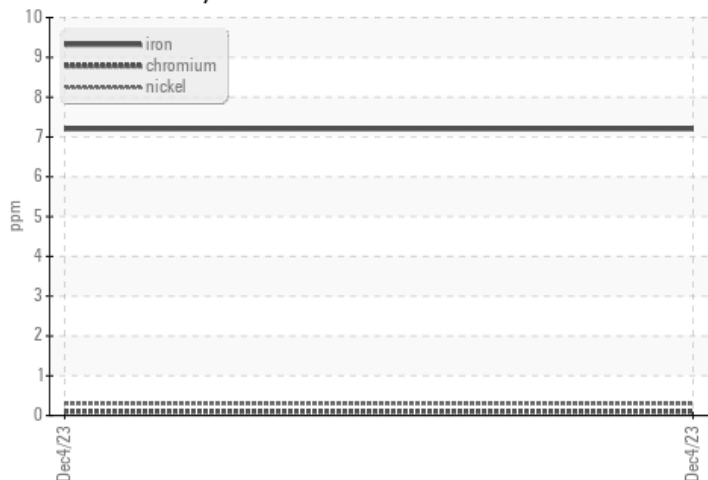
Calcium	ppm	● 763	---	---	---
Magnesium	ppm	● 205	---	---	---
Zinc	ppm	● 177	---	---	---
Phosphorus	ppm	● 170	---	---	---
Barium	ppm	8	---	---	---
Boron	ppm	● 558	---	---	---

Depot: LIEGIL
 Unique No: 10780921
 Signed: Jonathan Hester
 Report Date: 14 Dec 2023

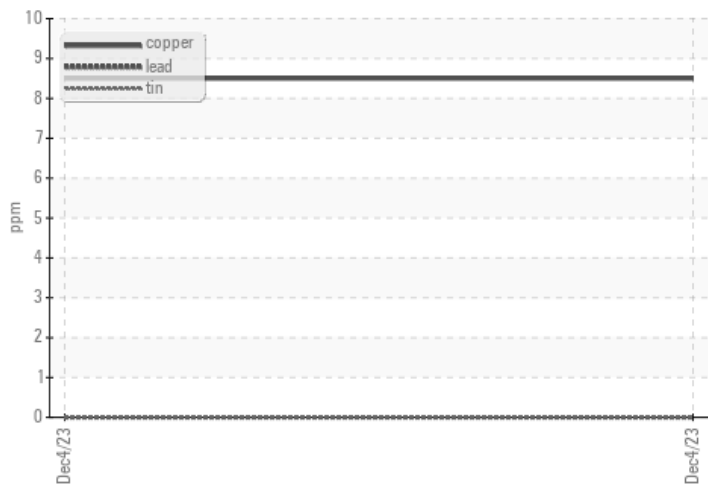


GRAPHS

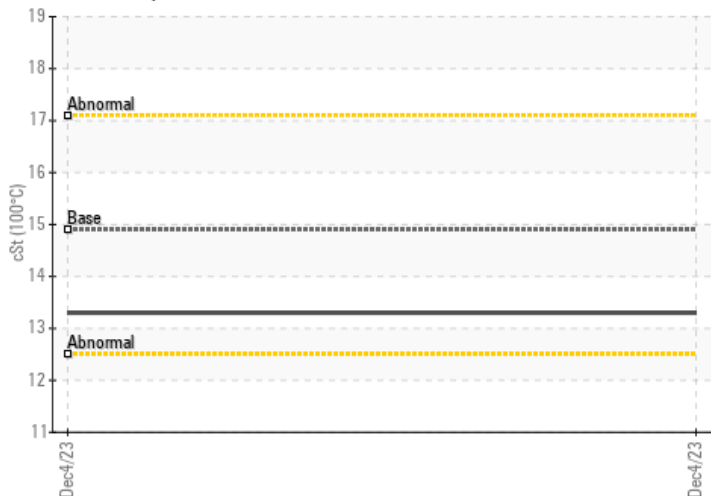
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

