

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR A944C038730-194 - Diesel Engine

Sample No: LH0264610

Oil Type: DIESEL ENGINE OIL SAE 5W40



Sample Information

Sample Number	LH0264610	LH0258743	LH0264401	LH0185262
Sample Date	22 May 2024	14 Feb 2024	28 Jun 2023	29 Jan 2021
Machine Hours	31406	30984	29970	27384
Oil Hours	0	0	0	0
Oil Changed	Changed	Changed	N/A	Changed
Sample Status	MARGINAL	MARGINAL	ABNORMAL	NORMAL

ALTER METAL
 2080 SPINDT DR
 WAUPACA, WI
 US 54981
 Contact: BRAD DORMADY
 brad.dormady@altertrading.com
 T:
 F:



Oil Condition

Visc @ 100°C	cSt	11.7	11.8	14.7	14.3
Base Number (BN)	mg KOH/g	7.4	6.1	4.8	---
Oxidation (PA)	%	71	48	78	71



Contamination

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.9	1.1	3.1	1.3
Nitration (PA)	%	81	55	106	78
Sulfation (PA)	%	61	54	85	67
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	0.4	<1.0	<1.0
Silicon	ppm	5	3	7	4
Sodium	ppm	2	2	3	2
Potassium	ppm	1	2	7	0

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. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.



Wear Metals

Iron	ppm	5	6	24	13
Copper	ppm	1	<1	6	2
Lead	ppm	0	0	8	0
Tin	ppm	0	<1	<1	0
Aluminum	ppm	1	<1	<1	2
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	12	12	6	10
Nickel	ppm	0	0	0	0
Titanium	ppm	35	6	46	2
Silver	ppm	0	0	0	0
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	0	0	<1	0



Additives

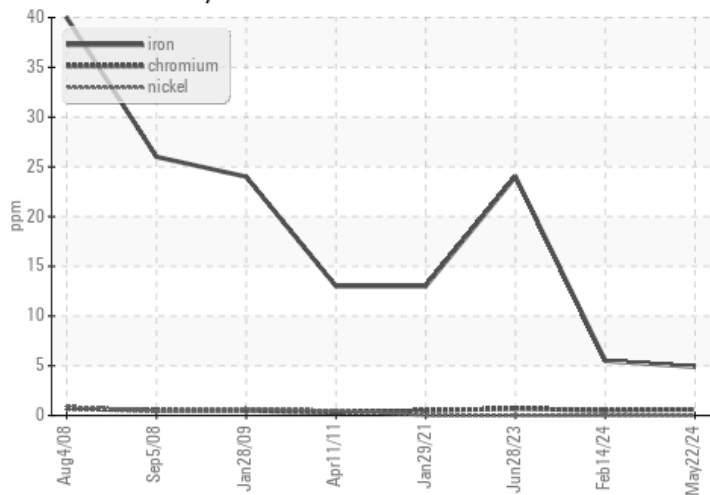
Calcium	ppm	1089	1366	1936	2405
Magnesium	ppm	398	163	430	74
Zinc	ppm	981	833	1262	1142
Phosphorus	ppm	806	740	999	958
Barium	ppm	0	0	0	0
Boron	ppm	51	71	44	94

Depot: ALTWAUWI
Unique No: 11060697
Signed: Don Baldrige
Report Date: 05 Jun 2024

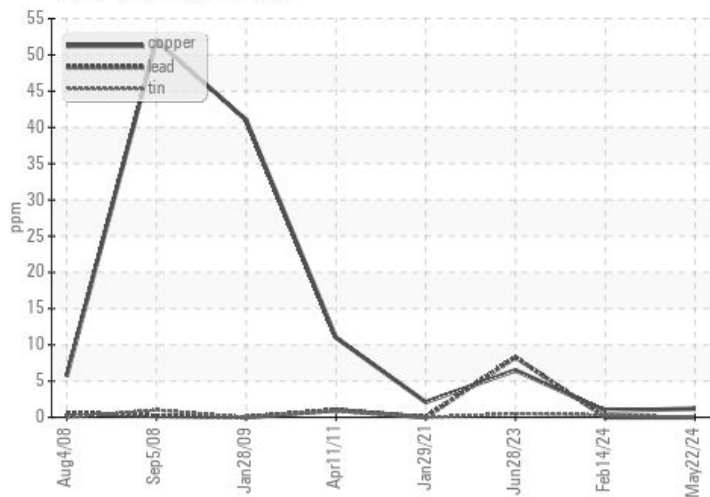


Graphs

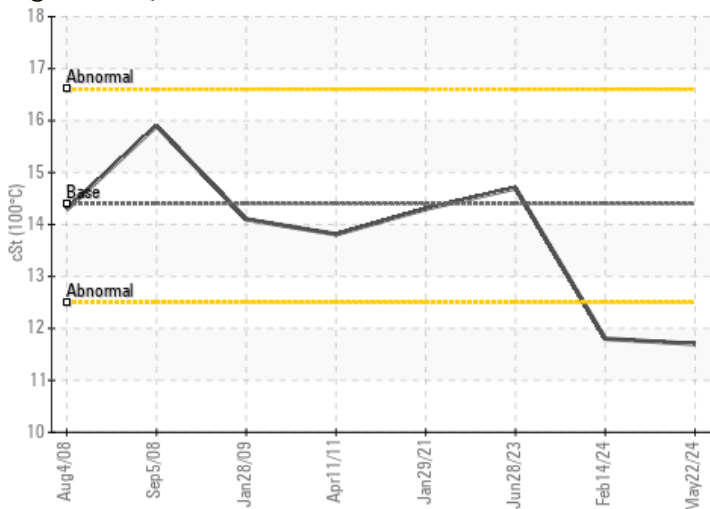
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

