

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR LH40 ML13 - Diesel Engine

Sample No: LH0244800

Oil Type: DIESEL ENGINE OIL SAE 15W40



Sample Information

Sample Number	LH0244800	LH0244828	LHMC122828	LHMC103190
Sample Date	29 Jun 2024	16 Mar 2024	04 Aug 2023	11 May 2023
Machine Hours	14265	13598	12105	11583
Oil Hours	0	500	0	0
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	ATTENTION	ATTENTION	ATTENTION	ABNORMAL

OSCAR WINSKI CO. INC
 2407 N. 9TH STREET
 LAFAYETTE, IN
 US 47904
 Contact: JAYSON FRAZIER
 frazierj@oscarwinski.com
 T: (765)376-1230
 F: x:



Oil Condition

Visc @ 100°C	cSt	11.5	11.5	11.6	12.4
Base Number (BN)	mg KOH/g	5.9	6.3	6.5	7.7
Oxidation (PA)	%	113	110	98	74



Contamination

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.1	0.1	0.1	0.1
Nitration (PA)	%	117	113	103	81
Sulfation (PA)	%	61	60	57	55
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	2.1	<1.0
Silicon	ppm	4	7	7	8
Sodium	ppm	3	4	5	11
Potassium	ppm	18	14	16	13

Diagnosis

The oil 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	7	5	7	8
Copper	ppm	5	2	34	156
Lead	ppm	0	1	<1	3
Tin	ppm	<1	<1	<1	<1
Aluminum	ppm	2	<1	1	0
Chromium	ppm	<1	<1	0	0
Molybdenum	ppm	3	10	9	53
Nickel	ppm	0	0	0	0
Titanium	ppm	<1	<1	<1	<1
Silver	ppm	0	0	0	<1
Manganese	ppm	0	0	<1	<1
Vanadium	ppm	<1	<1	<1	0



Additives

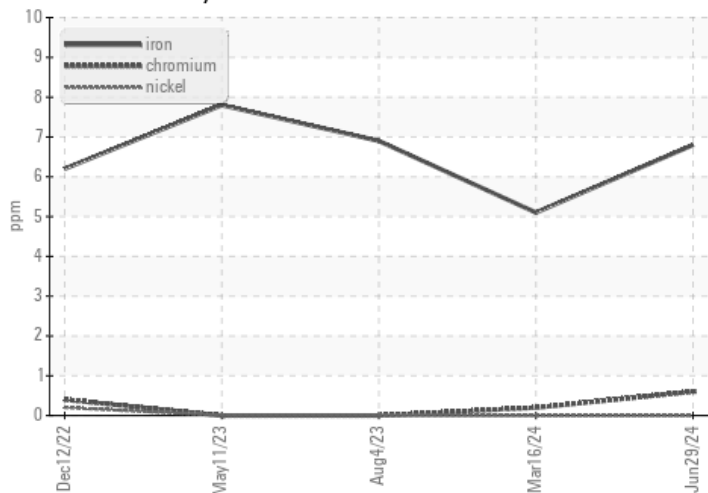
Calcium	ppm	2511	2385	2197	1389
Magnesium	ppm	128	196	193	867
Zinc	ppm	848	921	844	1216
Phosphorus	ppm	774	769	703	950
Barium	ppm	0	0	0	0
Boron	ppm	3	12	1	8

Depot: OSCLAF
Unique No: 11123535
Signed: Don Baldrige
Report Date: 15 Jul 2024

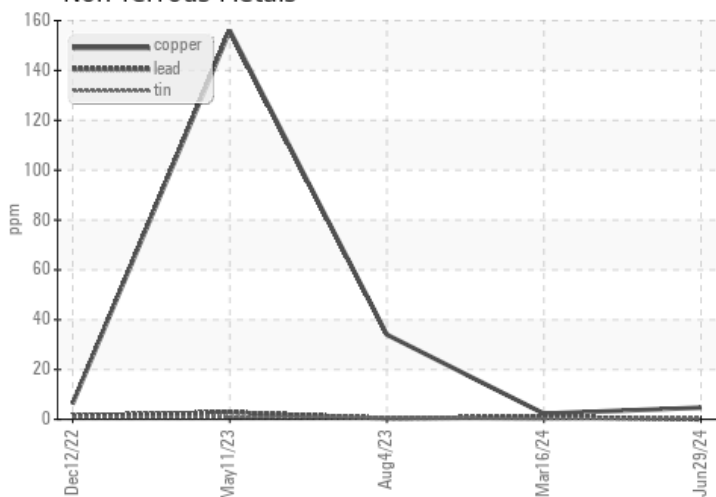


Graphs

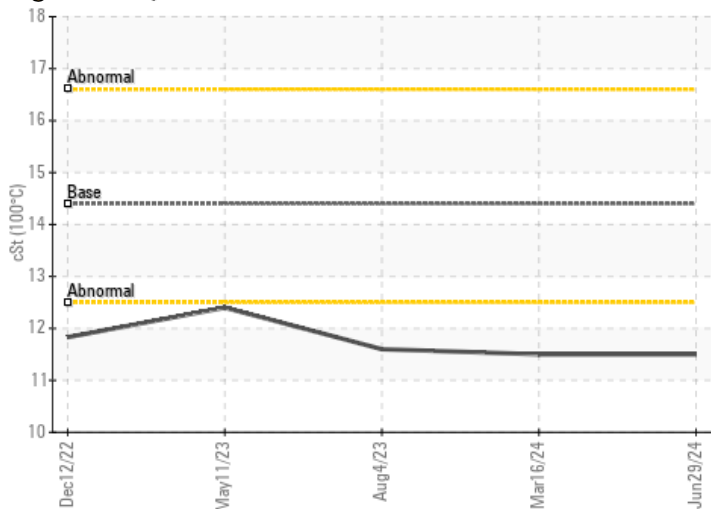
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

