

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR A934C 064064-1007 - Diesel Engine

Sample No: LH0268387

Oil Type: CHEVRON DELO LE 5W40



Sample Information

Sample Number	LH0268387	LH0258824	LH0272765	LH0243356
Sample Date	27 Jun 2024	20 Feb 2024	21 Dec 2023	02 Oct 2023
Machine Hours	26934	26421	25949	25481
Oil Hours	0	0	0	0
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	ABNORMAL	ATTENTION	ATTENTION	NORMAL

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Oil Condition

Visc @ 100°C	cSt	12.3	11.6	10.3	12.8
Base Number (BN)	mg KOH/g	6.4	6.6	6.2	5.9
Oxidation (PA)	%	68	61	61	63



Contamination

Water	%	NEG	NEG	NEG	NEG
Soot %	%	2.1	1.3	1.1	2.5
Nitration (PA)	%	85	68	59	78
Sulfation (PA)	%	76	65	67	73
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	0.5	<1.0
Silicon	ppm	9	10	6	7
Sodium	ppm	6	3	0	3
Potassium	ppm	2	2	4	4

Diagnosis

Oil and filter 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. All other 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	22	18	15	21
Copper	ppm	89	1	3	1
Lead	ppm	<1	<1	<1	<1
Tin	ppm	<1	0	<1	0
Aluminum	ppm	2	1	1	2
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	16	2	3	7
Nickel	ppm	0	0	0	<1
Titanium	ppm	59	59	45	58
Silver	ppm	0	0	0	0
Manganese	ppm	<1	<1	0	<1
Vanadium	ppm	<1	<1	<1	<1



Additives

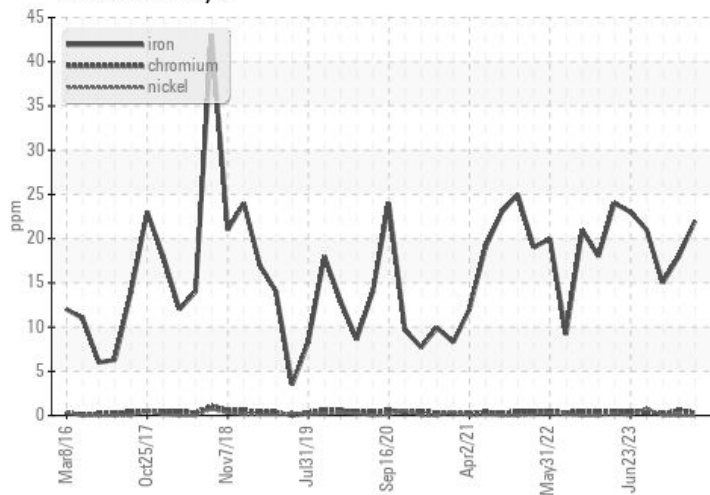
Calcium	ppm	1749	1569	1561	1431
Magnesium	ppm	520	474	320	578
Zinc	ppm	1199	1131	982	1181
Phosphorus	ppm	999	944	916	914
Barium	ppm	0	0	10	0
Boron	ppm	57	65	58	33

Depot: LEC0008
 Unique No: 11126137
 Signed: Don Baldrige
 Report Date: 17 Jul 2024

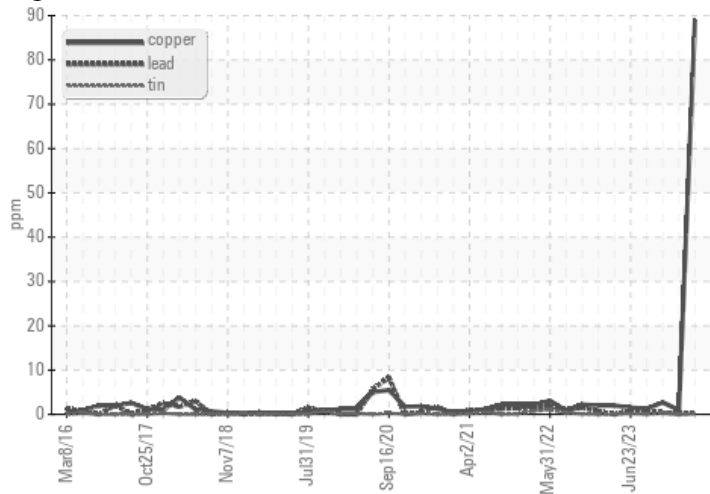


Graphs

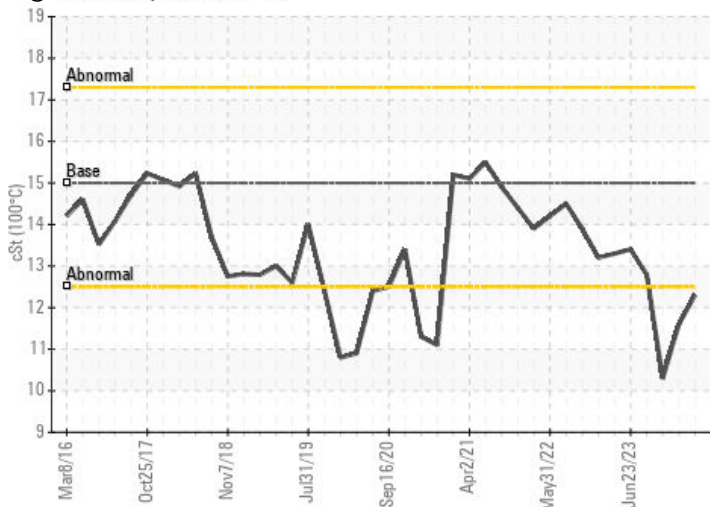
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

