

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR LH110 155976-1227 - Diesel Engine

Sample No: LH0258471
 Oil Type: DIESEL ENGINE OIL SAE 15W40



KINDER MORGAN
 4301 IVERSON
 TRINITY, AL
 US 35601
 Contact: CHIP OAKES

T: (256)350-0006
 F: (256)355-5250

Diagnosis

Resample at the next service interval to monitor. 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.



Sample Information

Sample Number	LH0258471	LH0280572	LH0280572	LH0280569
Sample Date	27 Mar 2024	23 Feb 2024	15 Feb 2024	30 Jan 2024
Machine Hours	1266	995	874	534
Oil Hours	271	0	0	0
Oil Changed	Not Changd	Changed	Not Changd	Changed
Sample Status	NORMAL	NORMAL	NORMAL	ABNORMAL



Oil Condition

Visc @ 100°C	cSt	12.8	12.6	12.8	12.1
Base Number (BN)	mg KOH/g	7.5	6.9	7.1	5.7
Oxidation (PA)	%	63	79	73	180



Contamination

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.1	0.1	0.1	0.1
Nitration (PA)	%	56	67	59	90
Sulfation (PA)	%	56	62	61	101
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	10	9	9	11
Sodium	ppm	3	2	3	2
Potassium	ppm	1	<1	2	3



Wear Metals

Iron	ppm	4	6	5	8
Copper	ppm	6	28	22	141
Lead	ppm	<1	0	<1	0
Tin	ppm	<1	<1	<1	0
Aluminum	ppm	4	3	3	2
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	87	82	79	55
Nickel	ppm	<1	<1	<1	0
Titanium	ppm	<1	<1	<1	0
Silver	ppm	0	0	0	0
Manganese	ppm	<1	<1	<1	0
Vanadium	ppm	<1	0	<1	0



Additives

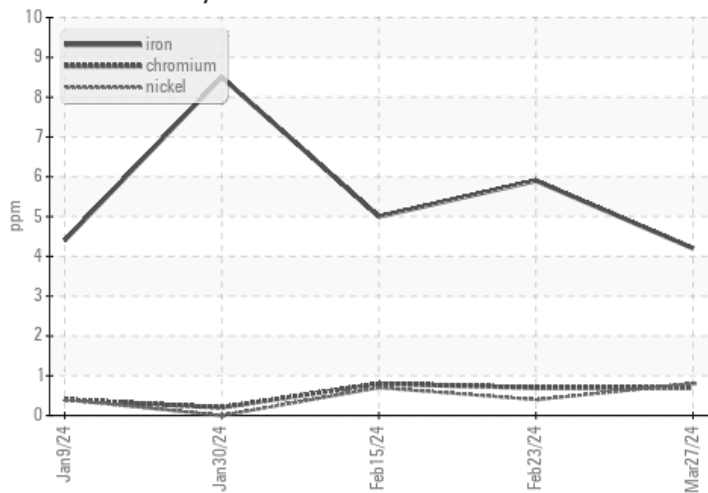
Calcium	ppm	1348	1270	1152	1251
Magnesium	ppm	431	488	439	858
Zinc	ppm	1204	1201	1060	938
Phosphorus	ppm	1096	950	863	686
Barium	ppm	0	2	36	32
Boron	ppm	427	299	335	142

Depot: KINTRI
 Unique No: 10996512
 Signed: Wes Davis
 Report Date: 26 Apr 2024

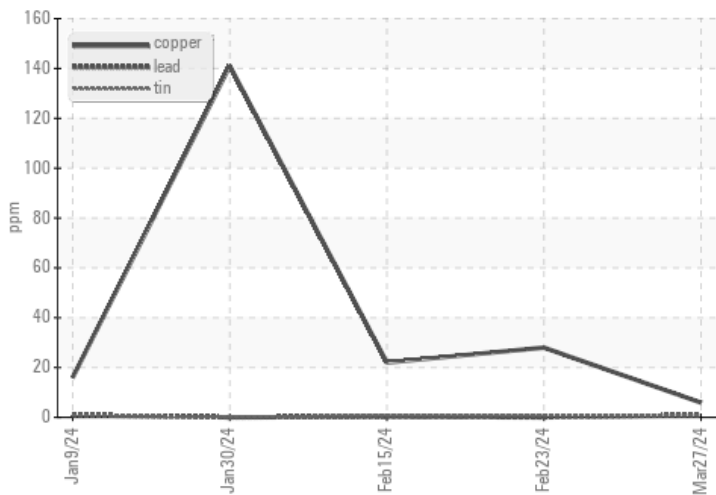


Graphs

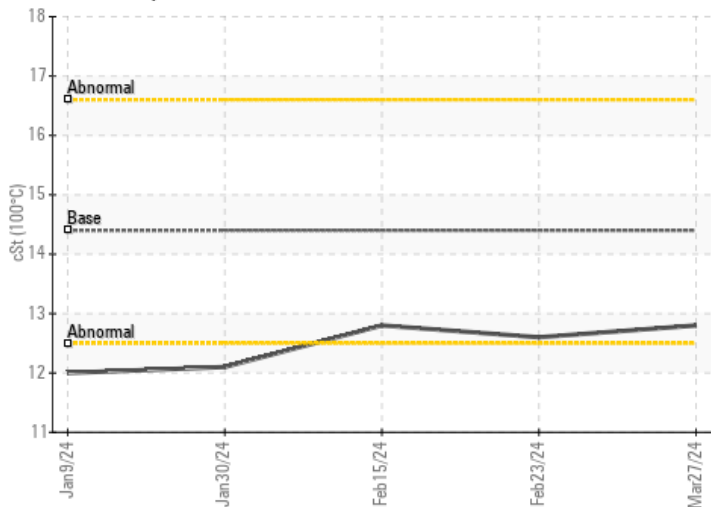
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

