LIEBHERR
CONSTRUCTION EQUIPMENT

LIEBHERR L586 032994-461 - Diesel Engine

Sample No: LH0264101

Oil Type: LIEBHERR MOTOROIL 10W-40 LOW ASH

TT & E IRON
1529 WEST GARNER RD
GARNER, NC
US 27529
Contact: MICHAEL STANCIL
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T: (919)524-4326
F:

SAMPLE INFORMATION

Sample Number		**LH0264101**	LH0220135	LH0229348	LH0200195
Sample Date		**06 Jul 2023**	28 Feb 2023	12 Jul 2022	20 Mar 2022
Machine Hours		**10350**	9819	8606	8007
Oil Hours		**500**	1000	500	1000
Oil Changed		**Changed**	Changed	Changed	Changed
Sample Status		**NORMAL**	NORMAL	NORMAL	NORMAL

OIL CONDITION

Visc @ 100°C	cSt	**14.4**	14.2	14.3	14.4
Base Number (BN)	mg KOH/g	**7.8**	6.1	8.4	7.8
Oxidation (PA)	%	**78**	87	78	91

CONTAMINATION

Soot %	%	**1.4**	2.3	1.4	1.8
Nitration (PA)	%	**83**	93	84	97
Sulfation (PA)	%	**59**	68	58	67
Glycol	%	**NEG**	NEG	NEG	NEG
Fuel	%	**<1.0**	<1.0	<1.0	<1.0
Silicon	ppm	**10**	8	6	5
Sodium	ppm	**5**	7	6	7
Potassium	ppm	**4**	3	2	3

WEAR METALS

Iron	ppm	**19**	26	12	17
Copper	ppm	**2**	2	<1	2
Lead	ppm	**1**	2	1	2
Tin	ppm	**<1**	<1	<1	<1
Aluminum	ppm	**3**	3	2	2
Chromium	ppm	**<1**	<1	<1	<1
Molybdenum	ppm	**4**	4	5	11
Nickel	ppm	**<1**	0	0	<1
Titanium	ppm	**<1**	0	0	0
Silver	ppm	**0**	0	<1	0
Manganese	ppm	**<1**	<1	<1	<1
Vanadium	ppm	**0**	<1	0	0

ADDITIVES

Calcium	ppm	**1545**	1467	1476	1322
Magnesium	ppm	**901**	863	803	796
Zinc	ppm	**1069**	920	863	905
Phosphorus	ppm	**960**	774	735	737
Barium	ppm	**0**	0	0	2
Boron	ppm	**99**	49	76	62

Diagnosis

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 BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Depot: TTENEW
Unique No: 10561106
Signed: Wes Davis
Report Date: 18 Jul 2023

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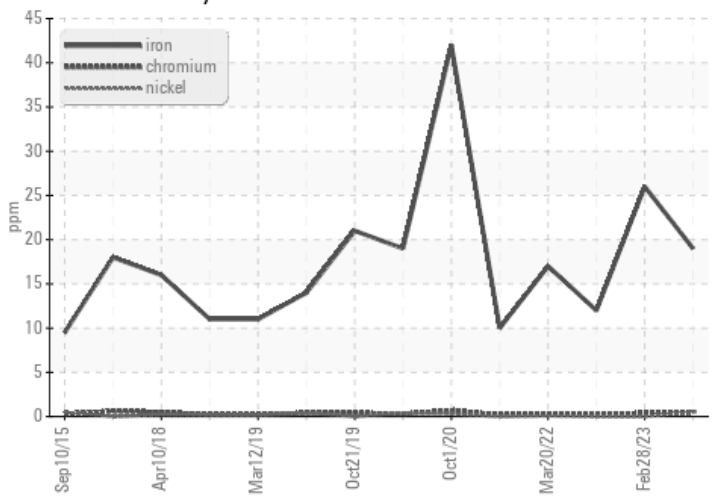
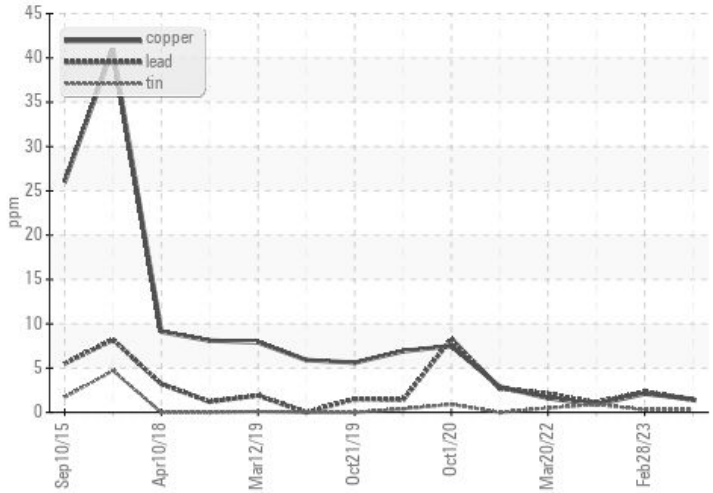
GRAPHS

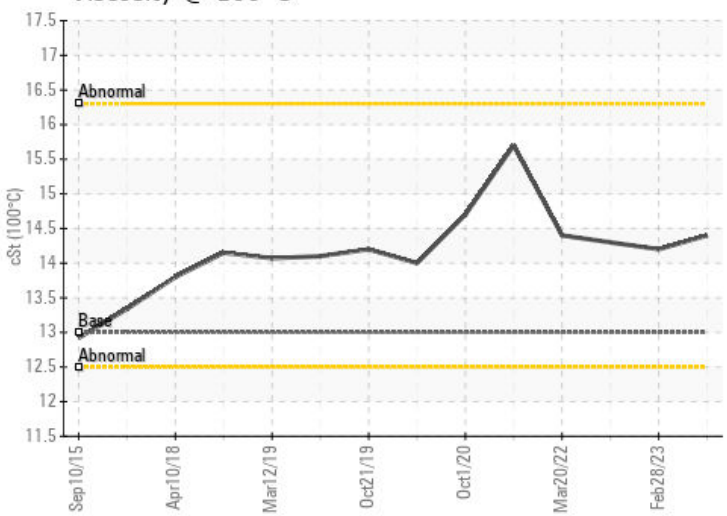
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number