

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR A934C 045866-1007 - Diesel Engine

Sample No: LH0259164

Oil Type: SHELL RIMULA SUPER SAE 15W40



SAMPLE INFORMATION

Sample Number	LH0259164	LH0244931	LH0229941	LH0217023
Sample Date	11 Oct 2023	04 Apr 2023	09 Aug 2022	07 Feb 2022
Machine Hours	28406	27390	26180	25181
Oil Hours	0	0	0	0
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	SEVERE	NORMAL

INTEGRITY METALS

835 EAST INDUSTRIAL
MORRISTOWN, IN
US 46161
Contact: HEIDI KERSTIENS
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OIL CONDITION

Visc @ 100°C	cSt	13.9	13.7	16.5	13.7
Base Number (BN)	mg KOH/g	6.1	5.9	0.0	10.4
Oxidation (PA)	%	48	53	94	53



CONTAMINATION

Soot %	%	1.4	0.9	5.5	0.1
Nitration (PA)	%	70	69	148	68
Sulfation (PA)	%	54	49	98	50
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	6	8	12	10
Sodium	ppm	2	2	62	23
Potassium	ppm	2	<1	2	1

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.



WEAR METALS

Iron	ppm	7	6	94	4
Copper	ppm	2	3	383	34
Lead	ppm	<1	0	13	1
Tin	ppm	0	<1	5	<1
Aluminum	ppm	2	0	2	3
Chromium	ppm	0	<1	2	0
Molybdenum	ppm	56	87	80	74
Nickel	ppm	0	<1	1	0
Titanium	ppm	<1	0	<1	0
Silver	ppm	0	0	5	5
Manganese	ppm	0	<1	3	<1
Vanadium	ppm	<1	0	<1	0



ADDITIVES

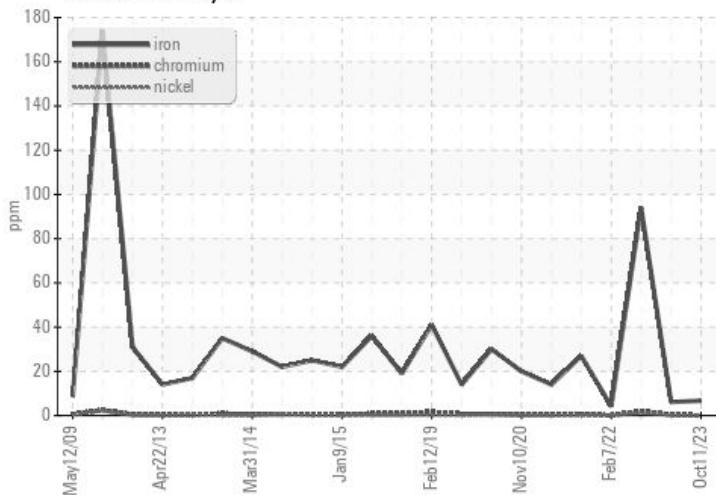
Calcium	ppm	2256	2138	2768	2620
Magnesium	ppm	12	20	47	44
Zinc	ppm	1196	1168	1192	1128
Phosphorus	ppm	956	999	1017	1070
Barium	ppm	0	2	28	9
Boron	ppm	34	73	41	141

Depot: INTMORLH
Unique No: 10702607
Signed: Wes Davis
Report Date: 23 Oct 2023

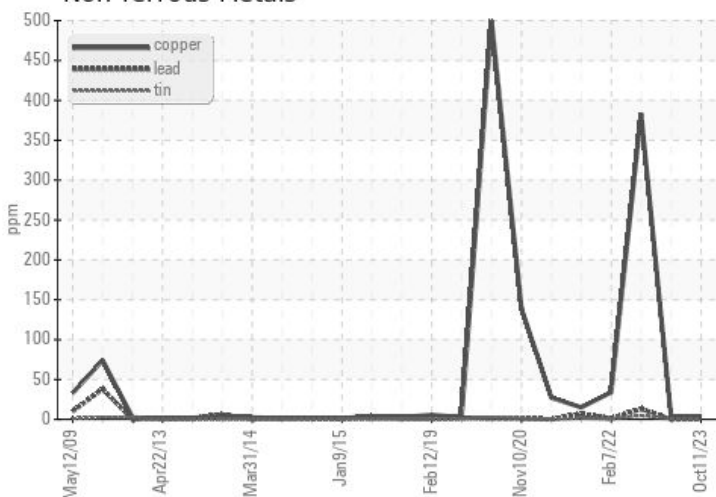


GRAPHS

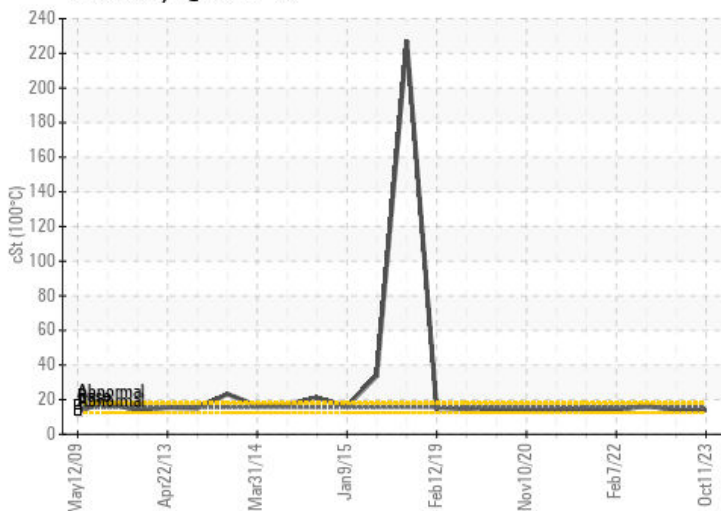
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

