

LIEBHERR R934C 024303 - Diesel Engine

Sample No: LH0178235

Oil Type: DIESEL ENGINE OIL SAE 10W30

SAMPLE INFORMATION

Sample Number		LH0178235	LH0235014	LH0214155	LH0186982		
Sample Date		05 Jul 2023	08 Dec 2022	22 Nov 2021	23 Feb 2021		
Machine Hours		18716	18131	17000	16193		
Oil Hours		585	500	500	500		
Oil Changed		Changed	Changed	Changed	Changed		
Sample Status		SEVERE	ABNORMAL	ABNORMAL	ABNORMAL		
Visc @ 100°C	cSt	<mark>)</mark> 17.3	0 13.4	0 20.1	0 17.4		
Oxidation (PA)	%	62	65	101	64		
1							

Soot %	%	5	0 3.7	0 4.4	4 .3	
Nitration (PA)	%	96	84	134	93	
Sulfation (PA)	%	82	77	98	80	
Glycol	%	NEG	NEG	NEG	NEG	
Fuel	%	<1.0	<1.0	<1.0	<1.0	
Silicon	ppm	07	07	07	○ 7	
Sodium	ppm	0 2	2	2	3	
Potassium	ppm	0	0	◯ <1	○ <1	

WEAR METALS

Iron	ppm	2 4	24	◯ 51	22
Copper	ppm	02	01	2	2
Lead	ppm	○ <1	0	0 1	◯ <1
Tin	ppm	0 🔘	0	○ <1	○ <1
Aluminum	ppm	01	01	2	01
Chromium	ppm	◯ <1	○ <1	01	○ <1
Molybdenum	ppm	071	62	57	54
Nickel	ppm	○ <1	○ <1	○ <1	○ <1
Titanium	ppm	0	○ <1	○ <1	2
Silver	ppm	0 🔘	0	0	0
Manganese	ppm	0	○ <1	○ <1	○ <1
Vanadium	ppm	0	0	0	<1

0	

Calcium	ppm	0 1787	0 1810	0 1407	0 1216		
Magnesium	ppm	0 448	◯ 465	○ 772	849		
Zinc	ppm	0 1175	0 1180	0 1186	0 1172		
Phosphorus	ppm	0 972	0 1043	0 1029	938		
Barium	ppm	○ <1	0	0	◯ <1		
Boron	ppm	0 47	○ 60	32	20		





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Diagnosis

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.All component wear rates are normal. There is an abnormal amount of solids and carbon present in the oil. The oil viscosity is higher than normal. The oil is no longer serviceable due to the presence of contaminants.

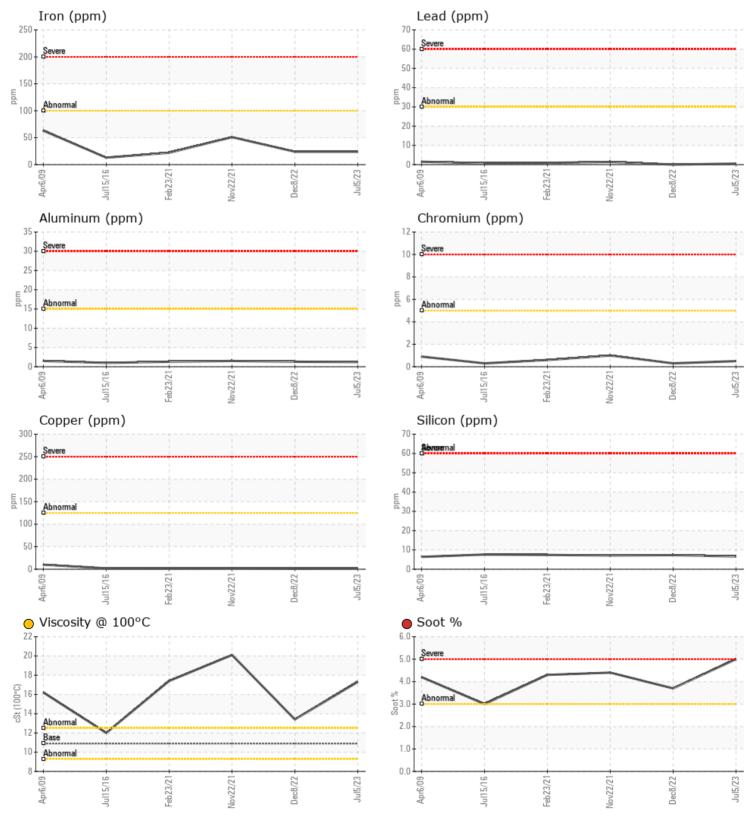
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