



LIEBHERR 24459 - Diesel Engine

Sample No: LH0220486

Oil Type: LIEBHERR MOTOROIL 10W-40 LOW ASH

	LE INFOR				
Sample Number		LH0220486	LH0220483	 	
Sample Date		28 Apr 2023	23 Mar 2023	 	
Machine Hours		936	464	 	
Oil Hours		936	464	 	
Oil Changed		Changed	Not Changd	 	
Sample Status		ABNORMAL	ATTENTION	 	
	NDITION				
			0.44.7		
Visc @ 100°C	cSt	0 11.4	0 11.7	 	
Base Number (BN)	0 0	O 3.4	5.5	 	
Oxidation (PA)	%	192	187	 	
11 A					
CONT	AMINATI	ON			
Soot %	%	0.1	0.1	 	
Nitration (PA)	%	88	86	 	
Sulfation (PA)	%	99	103	 	
Glycol	%	NEG	NEG		
Fuel	%		○ 1.6	 	
		0 1.6	U 1	 	
Silicon	ppm	0 17	0 18	 	
Sodium	ppm	0	02	 	
Potassium	ppm	3	03	 	

WEAR METALS

Iron	ppm	0 21	0 16	
Copper	ppm	08 (0 61	
Lead	ppm	0 2	0 1	
Tin	ppm	01	0 1	
Aluminum	ppm	○ <1	0 2	
Chromium	ppm	○ <1	0	
Molybdenum	ppm	43	0 45	
Nickel	ppm	0	0 0	
Titanium	ppm	<1	0	
Silver	ppm	0	0	
Manganese	ppm	04	0 5	
Vanadium	ppm	0	0	

	DITIVES				
Calcium	ppm	0 1370	0 1532	 	
Magnesium	ppm	0 805	978	 	
Zinc	ppm	826	0 1002	 	
Phosphorus	ppm	632	○ 774	 	
Barium	ppm	0 11	0	 	
Boron	ppm	94	0 119	 	
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LIEBHERR MINING EQUIPMENT CO

5800 S DOUGLAS HWY GILLETTE, WY US 82718 Contact: TED PILZ ted.pilz@liebherr.com T: (775)388-0663 F:

Diagnosis

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.All component wear rates are normal. Fuel content negligible. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN level is low. Confirm oil type.

Depot:LIEGILUnique No:10457133Signed:Don BaldridgeReport Date:08 May 2023

Contact/Location: TED PILZ - LIEGIL

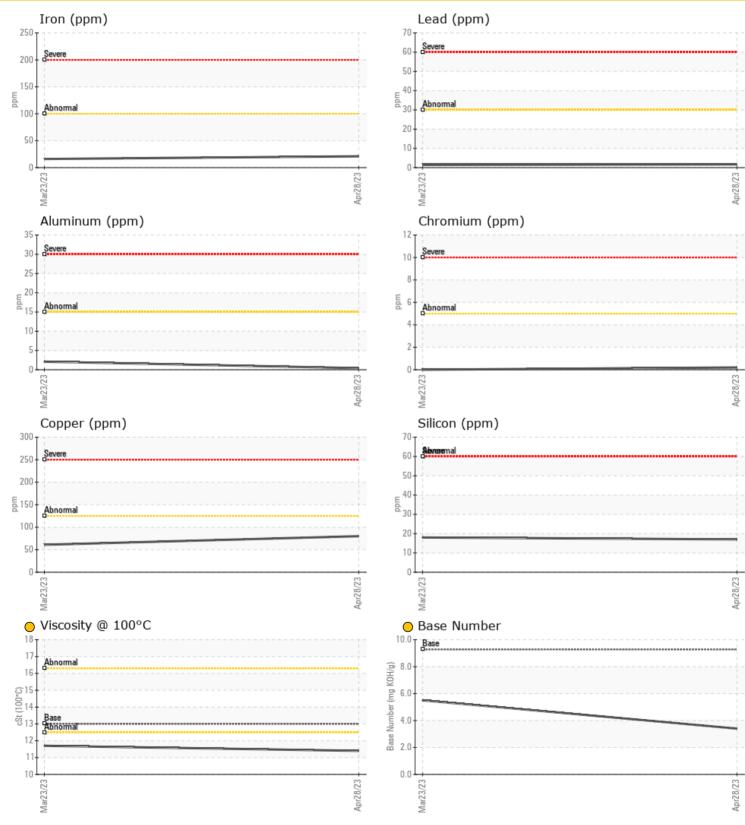
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GRAPHS

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Contact/Location: TED PILZ - LIEGIL