

Unit ID **Hydraulic excavator**  
 Component **Hydraulic**  
 Current sample number **1700812**

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page 1 of 1

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Machine type: **A 904**  
 Manufacturer: **Liebherr**  
 Oil brand name: **Liebherr Hydraulic HVI**  
 Oil quantity in system: **320 l**

Example report  
 Analysis scope: Analysis-Kit 2

### Diagnosis for the current laboratory values

Iron has slightly increased. The cleanliness class of the oil complies with the requirements. Only minor deviations of the additive content can be detected compared to the previous sample. Please observe further changes with the next sample. If the oil meets the Liebherr specification, please send us the next sample after a further 1000 hours so we can observe the trend. Otherwise, the oil should be changed.

Dipl.-Ing. Andy Böhme (MLA II + CLS)

### Sample Rating



**normal**

ANALYSIS RESULTS			Current sample	Previous samples	
LAB NUMBER			1700812	1700813	
SAMPLE RATING					
Date tested			02.07.2021	17.07.2020	
Date of sample taken			18.06.2021	03.07.2020	
Date of last oil change			11.07.2019	11.07.2019	
Top-up since change	l		50	50	
Operating time since change	h		3000	2016	
Total operating time	h		3000	2016	
Oil changed			no	no	
<b>WEAR</b>					
Iron	Fe	mg/kg	26	17	
Chrom	Cr	mg/kg	4	2	
Tin	Sn	mg/kg	0	0	
Aluminum	Al	mg/kg	0	0	
Nickel	Ni	mg/kg	0	0	
Copper	Cu	mg/kg	7	6	
Lead	Pb	mg/kg	1	1	
Molybdenum	Mo	mg/kg	0	0	
PQ index	-		< 25	< 25	
<b>CONTAMINATION</b>					
Silicon	Si	mg/kg	2	2	
Potassium	K	mg/kg	2	4	
Sodium	Na	mg/kg	3	3	
Water	%		< 0.10	< 0.10	
<b>OIL CONDITION</b>					
Viscosity at 40°C	mm²/s		41.60	43.61	
Viscosity at 100°C	mm²/s		7.47	7.67	
Viscosity index	-		147	145	
Oxidation	A/cm		1	2	
IR index	-		99.62	98.91	
<b>ADDITIVES</b>					
Calcium	Ca	mg/kg	820	851	
Magnesium	Mg	mg/kg	3	0	
Boron	B	mg/kg	2	1	
Zinc	Zn	mg/kg	344	388	
Phosphorus	P	mg/kg	323	361	
Barium	Ba	mg/kg	0	0	
Sulphur	S	mg/kg	5663	5710	
<b>ADDITIONAL TESTS</b>					
Cleanliness class	ISO 4406		18/16/12	19/13/10	
A: >4µm = ISO >4µm	Particles/100ml		160350	308620	
B: >6µm = ISO >6µm	Particles/100ml		40610	4050	
C: >14µm = ISO >14µm	Particles/100ml		3840	510	
D: >21µm	Particles/100ml		1150	340	
E: >38µm	Particles/100ml		110	140	
F: >70µm	Particles/100ml		20	50	
Cleanliness class	SAE AS 4059		8A	9A	

Bottle and cap



Infrared Spectrum

