

Unit ID **Hydraulic excavator**
 Component **Bio-hydraulic fluid**
 Current sample number **1700781**



OELCHECK GmbH · Kerschelweg 28 · 83098 Brannenburg

Machine type: **A 900 Litronic**
 Manufacturer: **Liebherr**
 Oil brand name: **Panolin HLP Synth 46**
 Oil quantity in system: **280 l**

Example report
 Analysis scope: Analysis-Kit 3 (Bioset)

Diagnosis for the current laboratory values

The mineral oil content is less than 2% due to oil change or mixture with a mineral-oil based hydraulic oil. The values for wear metals have only increased slightly. This low wear is within the normal range. The water content is close to critical. The value for silicon, which indicates dust, has increased. Oil cleanliness is lower than recommended by component manufacturers. The oil cleanliness should be improved by changing the filter element or by additional bypass filtration. Please observe further changes with the next sample. I recommend that you send us another oil sample in app. 500 hours. If the oil cleanliness is improved, no oil change is required during this period.

Dipl.-Ing. Andy Böhme (MLA II + CLS)

Sample Rating



Caution

ANALYSIS RESULTS			Current sample	Previous samples		
LAB NUMBER			1700781	1700782	1700783	
SAMPLE RATING						
Date tested			16.01.2023	14.10.2022	06.04.2022	
Date of sample taken			09.01.2023	06.10.2022	27.03.2022	
Date of last oil change			20.03.2022	20.03.2022	20.03.2022	
Top-up since change	l		20	0	0	
Operating time since change	h		1027	509	3	
Total operating time	h		1027	509	3	
Oil changed			no	no	no	
WEAR						
Iron	Fe	mg/kg	12	4	0	
Chrom	Cr	mg/kg	9	1	0	
Tin	Sn	mg/kg	1	0	0	
Aluminum	Al	mg/kg	0	0	0	
Nickel	Ni	mg/kg	0	0	0	
Copper	Cu	mg/kg	11	0	0	
Lead	Pb	mg/kg	1	0	0	
Molybdenum	Mo	mg/kg	0	0	0	
PQ index	-		< 25	< 25	< 25	
CONTAMINATION						
Silicon	Si	mg/kg	23	14	12	
Potassium	K	mg/kg	0	0	0	
Sodium	Na	mg/kg	1	0	0	
Water K. F.	ppm		773	476	319	
OIL CONDITION						
Viscosity at 40°C	mm²/s		46.41	46.37	46.21	
Viscosity at 100°C	mm²/s		8.01	7.99	8.03	
Viscosity index	-		145	144	147	
IR index	-		99.11	99.08	99.30	
ADDITIVES						
Calcium	Ca	mg/kg	25	24	21	
Magnesium	Mg	mg/kg	3	3	2	
Boron	B	mg/kg	0	0	0	
Zinc	Zn	mg/kg	39	14	12	
Phosphorus	P	mg/kg	1638	1633	1679	
Barium	Ba	mg/kg	2	1	1	
Sulphur	S	mg/kg	1024	1117	1058	
ADDITIONAL TESTS						
AN / NN	mgKOH/g		1.08	0.85	0.67	
Density 15°C	kg/m³		919	920	920	
Cleanliness class	ISO 4406		23/19/15	20/17/13	18/16/11	

