# LAB REPORT

OELCHECK since 1991

Unit ID: **Hydraulic excavator**

Component: Hydraulic

Current sample number: 1700812

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Example report
Analysis scope: Analysis-Kit 2

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

**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 | | | **04.07.2023** | 19.07.2022 | | |
| Date of sample taken | | | **18.06.2023** | 03.07.2022 | | |
| Date of last oil change | | | **11.07.2021** | 11.07.2021 | | |
| Top-up since change | | l | **50** | 50 | | |
| Operating time since change | | h | **3000** | 2016 | | |
| Total operating time | | h | **3000** | 2016 | | |
| Oil changed | | | **no** | no | | |
| WEAR | | | | | | |
| Iron | Fe | mg/kg | **26** | 17 | | |
| Chrome | 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 | | |
| CONTAMINATION | | | | | | |
| Silicon | Si | mg/kg | **2** | 2 | | |
| Potassium | K | mg/kg | **2** | 4 | | |
| Sodium | Na | mg/kg | **3** | 3 | | |
| Water | % | | **< 0.10** | < 0.10 | | |
| OIL CONDITION | | | | | | |
| 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 | | |
| ADDITIVES | | | | | | |
| 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 | | |
| ADDITIONAL TESTS | | | | | | |
| 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