



LIEBHERR

OIL ANALYSIS REPORT

| | |
|-----------------|--------|
| WEAR | NORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | NORMAL |



Machine Id
LIEBHERR LH30 115841-1253
Component
Hydraulic System
Fluid
SHELL TELLUS S2 MX 68 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | LH06062601 | LH0235736 | DJJ0011136 |
| Sample Date | | Client Info | | 11 Jan 2024 | 28 Sep 2023 | 22 May 2023 |
| Machine Age | hrs | Client Info | | 11390 | 10707 | 2000 |
| Oil Age | hrs | Client Info | | 0 | 0 | 2000 |
| Filter Age | hrs | Client Info | | 0 | 0 | 0 |
| Oil Changed | | Client Info | | Not Changd | N/A | Not Changd |
| Filter Changed | | Client Info | | N/A | N/A | N/A |
| Sample Status | | | | NORMAL | NORMAL | ABNORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >50 | 28 | 44 | ▲ 56 |
| Chromium | ppm | ASTM D5185m | >5 | 2 | 2 | 2 |
| Nickel | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| Silver | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >2 | 1 | 0 | <1 |
| Lead | ppm | ASTM D5185m | >4 | <1 | <1 | 0 |
| Copper | ppm | ASTM D5185m | >10 | 2 | 4 | 5 |
| Tin | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

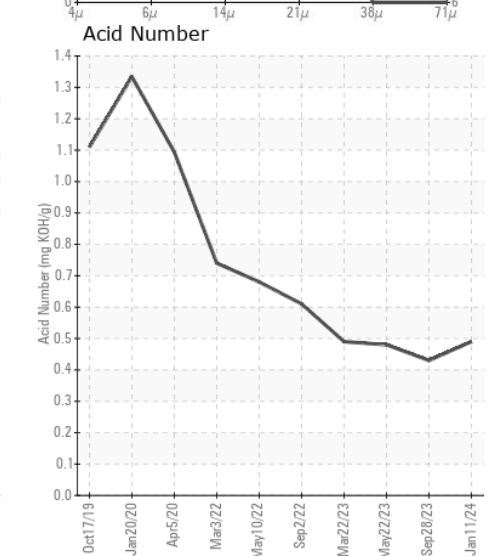
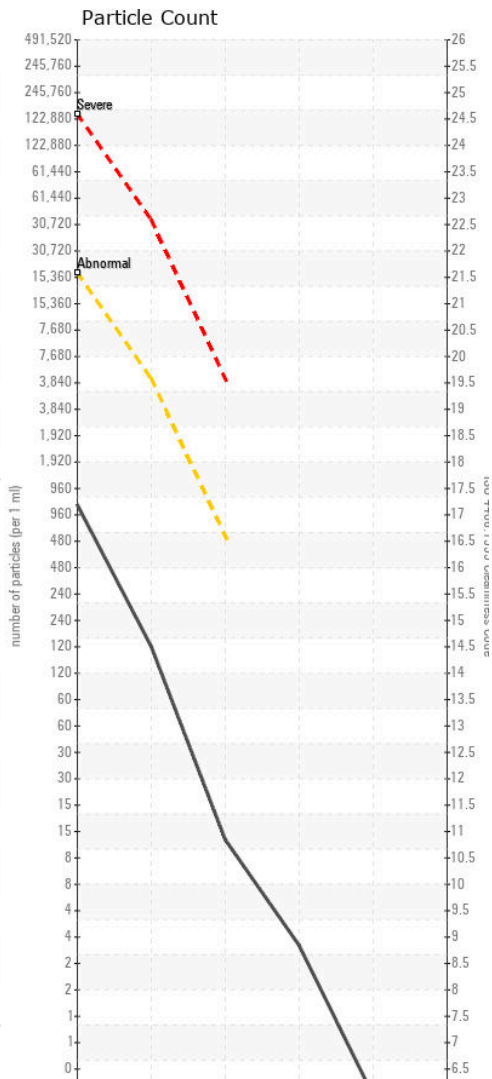
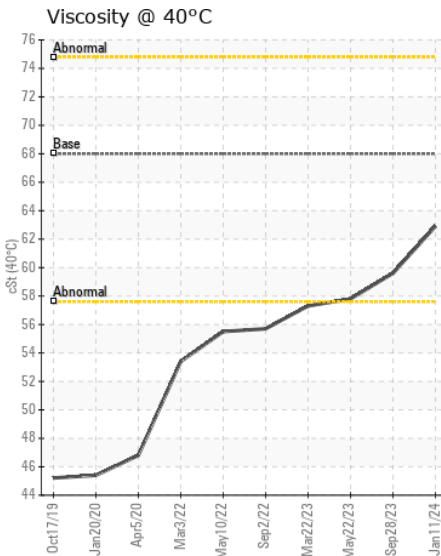
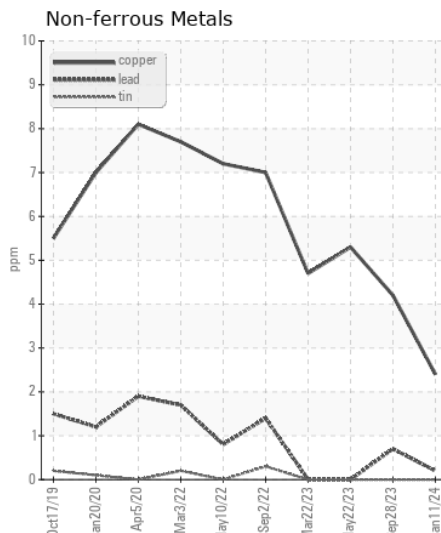
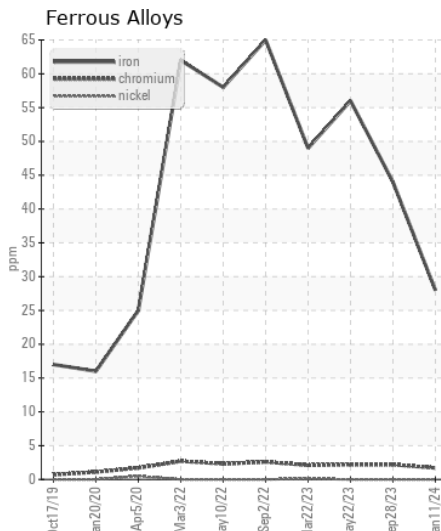
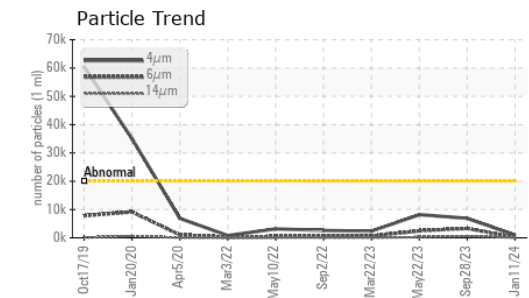
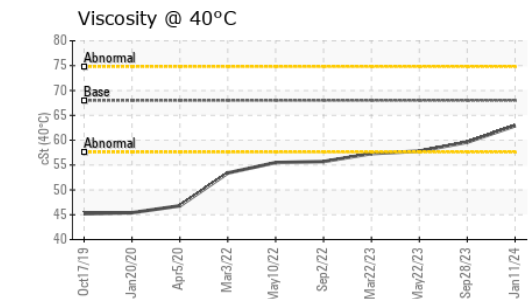
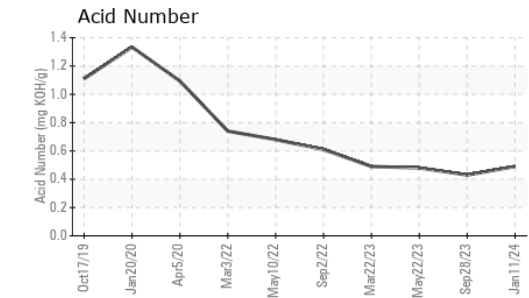
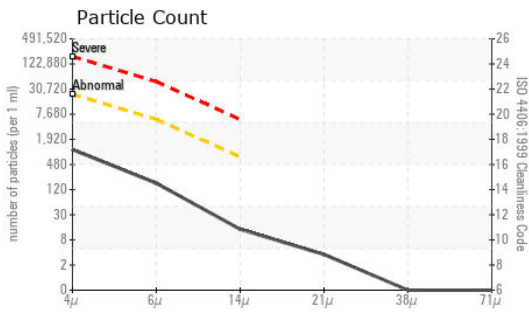
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

| | | | | | | |
|------------------|--------|--------------|-----------|-----------------|----------|----------|
| Silicon | ppm | ASTM D5185m | >17 | 1 | 1 | <1 |
| Potassium | ppm | ASTM D5185m | >20 | <1 | 1 | 0 |
| Water | | WC Method | >0.1 | NEG | NEG | NEG |
| Particles >4µm | | ASTM D7647 | >20000 | 959 | 6879 | 8189 |
| Particles >6µm | | ASTM D7647 | >5000 | 150 | 3289 | 2467 |
| Particles >14µm | | ASTM D7647 | >640 | 12 | 564 | 226 |
| Particles >21µm | | ASTM D7647 | >160 | 3 | 153 | 59 |
| Particles >38µm | | ASTM D7647 | >40 | 0 | 1 | 2 |
| Particles >71µm | | ASTM D7647 | >10 | 0 | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >21/19/16 | 17/14/11 | 20/19/16 | 20/18/15 |
| Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.1 | NEG | NEG | NEG |

FLUID CONDITION

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

| | | | | | | |
|------------------|----------|-------------|------|--------------|------|--------|
| Sodium | ppm | ASTM D5185m | | <1 | 1 | 3 |
| Boron | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | 0 | <1 | 0 |
| Manganese | ppm | ASTM D5185m | | <1 | <1 | 1 |
| Magnesium | ppm | ASTM D5185m | | 55 | 46 | 41 |
| Calcium | ppm | ASTM D5185m | | 95 | 102 | 160 |
| Phosphorus | ppm | ASTM D5185m | | 304 | 273 | 320 |
| Zinc | ppm | ASTM D5185m | | 344 | 359 | 385 |
| Sulfur | ppm | ASTM D5185m | | 959 | 1164 | 1528 |
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | 0.49 | 0.43 | 0.48 |
| Visc @ 40°C | cSt | ASTM D445 | 68.0 | 62.9 | 59.6 | ▲ 57.8 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LH06062601 **Received** : 17 Jan 2024
Lab Number : 06062601 **Diagnosed** : 18 Jan 2024
Unique Number : 10833983 **Diagnostician** : Wes Davis
Test Package : MOB 2

SPARTAN RECYCLING
 3071 HOWARD ST
 SPARTANBURG, SC
 US 29303
 Contact: SERVICE MANAGER

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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