



# LIEBHERR

## OIL ANALYSIS REPORT

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



Machine Id  
**LIEBHERR R938 050886-1650**  
Component  
**Right Final Drive**  
Fluid  
**LIEBHERR GEAR BASIC 90 LS (--- GAL)**

### RECOMMENDATION

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current     | History1    | History2    |
|----------------|-----|-------------|-----------|-------------|-------------|-------------|
| Sample Number  |     | Client Info |           | LH0267314   | LH0258265   | LH0258966   |
| Sample Date    |     | Client Info |           | 19 Dec 2023 | 08 Oct 2023 | 09 Aug 2023 |
| Machine Age    | hrs | Client Info |           | 2998        | 431         | 1993        |
| Oil Age        | hrs | Client Info |           | 0           | 0           | 1993        |
| Filter Age     | hrs | Client Info |           | 0           | 0           | 0           |
| Oil Changed    |     | Client Info |           | N/A         | Not Changd  | Changed     |
| Filter Changed |     | Client Info |           | N/A         | Not Changd  | Not Changd  |
| Sample Status  |     |             |           | ATTENTION   | NORMAL      | NORMAL      |

### WEAR

All component wear rates are normal.

|              |        |             |      |      |      |      |
|--------------|--------|-------------|------|------|------|------|
| Iron         | ppm    | ASTM D5185m | >500 | 40   | 47   | 88   |
| Chromium     | ppm    | ASTM D5185m | >10  | <1   | <1   | 2    |
| Nickel       | ppm    | ASTM D5185m | >10  | 0    | 0    | <1   |
| Titanium     | ppm    | ASTM D5185m |      | 0    | 0    | <1   |
| Silver       | ppm    | ASTM D5185m |      | 0    | 0    | 0    |
| Aluminum     | ppm    | ASTM D5185m | >25  | <1   | 0    | 1    |
| Lead         | ppm    | ASTM D5185m | >25  | 0    | 0    | 0    |
| Copper       | ppm    | ASTM D5185m | >50  | 0    | 0    | 0    |
| Tin          | ppm    | ASTM D5185m | >10  | 0    | 0    | 0    |
| Vanadium     | ppm    | ASTM D5185m |      | 0    | <1   | 0    |
| White Metal  | scalar | *Visual     | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual     | NONE | NONE | NONE | NONE |

### CONTAMINATION

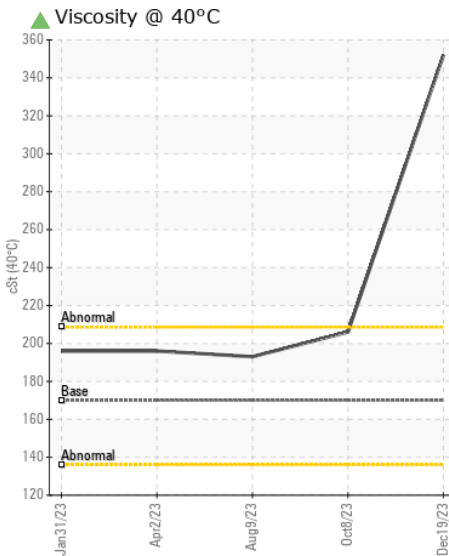
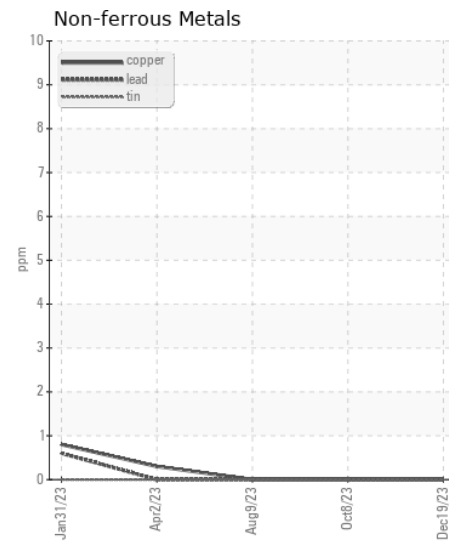
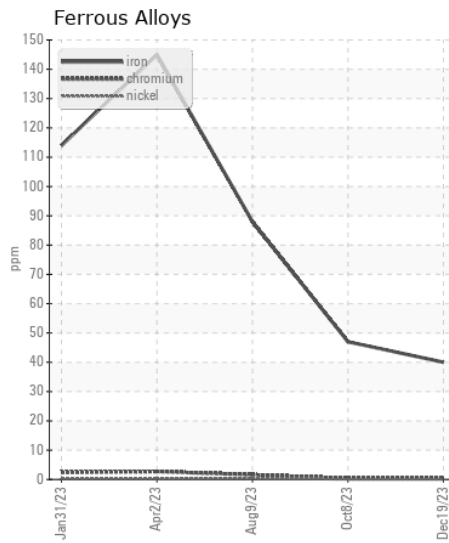
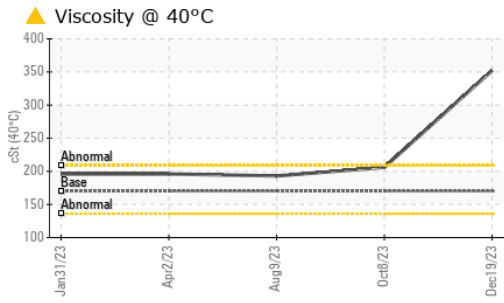
There is no indication of any contamination in the oil.

|                  |        |             |       |       |       |       |
|------------------|--------|-------------|-------|-------|-------|-------|
| Silicon          | ppm    | ASTM D5185m | >75   | 5     | 4     | 8     |
| Potassium        | ppm    | ASTM D5185m | >20   | <1    | 18    | 1     |
| Water            |        | WC Method   | >0.2  | NEG   | NEG   | NEG   |
| Silt             | scalar | *Visual     | NONE  | NONE  | NONE  | NONE  |
| Debris           | scalar | *Visual     | NONE  | NONE  | NONE  | LIGHT |
| 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     | >0.2  | NEG   | NEG   | NEG   |

### FLUID CONDITION

The oil viscosity is higher than normal.

|             |     |             |       |       |       |       |
|-------------|-----|-------------|-------|-------|-------|-------|
| Sodium      | ppm | ASTM D5185m |       | <1    | 6     | 3     |
| Boron       | ppm | ASTM D5185m | 0     | 0     | <1    | 1     |
| Barium      | ppm | ASTM D5185m | 0     | 0     | 11    | 4     |
| Molybdenum  | ppm | ASTM D5185m | 0     | 0     | 0     | 0     |
| Manganese   | ppm | ASTM D5185m | 0     | <1    | <1    | 1     |
| Magnesium   | ppm | ASTM D5185m | <1    | 0     | 0     | 4     |
| Calcium     | ppm | ASTM D5185m | <1    | 2     | 16    | 26    |
| Phosphorus  | ppm | ASTM D5185m | 2143  | 1423  | 1219  | 2284  |
| Zinc        | ppm | ASTM D5185m | <1    | 0     | 25    | 37    |
| Sulfur      | ppm | ASTM D5185m | 23468 | 28470 | 25873 | 33474 |
| Visc @ 40°C | cSt | ASTM D445   | 170   | ▲ 352 | 206   | 193   |



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : LH0267314 **Recieved** : 12 Jan 2024  
**Lab Number** : 06060495 **Diagnosed** : 16 Jan 2024  
**Unique Number** : 10831877 **Diagnostician** : Don Baldrige  
**Test Package** : CONST

**M&F CONCRETE PRODUCTS CO**  
 4002 CATLETT RD  
 CATLETT, VA  
 US 20119  
 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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F: