



LIEBHERR

OIL ANALYSIS REPORT

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



Machine Id
LIEBHERR LH50M 1216-98210

Component
Hydraulic System

Fluid
AW HYDRAULIC OIL ISO 68 (--- GAL)

RECOMMENDATION

Confirm the source of the lubricant being utilized for top-up/fill.
Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | LH0289808 | LHMC103997 | LHMC103483 |
| Sample Date | | Client Info | | 27 May 2024 | 25 Feb 2019 | 10 May 2018 |
| Machine Age | hrs | Client Info | | 1000 | 2940 | 894 |
| Oil Age | hrs | Client Info | | 0 | 2940 | 894 |
| Filter Age | hrs | Client Info | | 0 | 500 | 894 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | ABNORMAL | ATTENTION | ATTENTION |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|---------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185(m) | >60 | 3 | 8 | 5 |
| Chromium | ppm | ASTM D5185(m) | >40 | 0 | <1 | <1 |
| Nickel | ppm | ASTM D5185(m) | >10 | 0 | 0 | <1 |
| Titanium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >5 | <1 | <1 | 0 |
| Lead | ppm | ASTM D5185(m) | >5 | 0 | <1 | <1 |
| Copper | ppm | ASTM D5185(m) | >15 | 1 | 2 | <1 |
| Tin | ppm | ASTM D5185(m) | >5 | 0 | 0 | 0 |
| Vanadium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| 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.

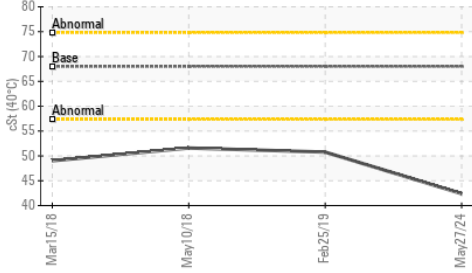
| | | | | | | |
|------------------|--------|---------------|-----------|-----------------|----------|----------|
| Silicon | ppm | ASTM D5185(m) | >15 | 4 | <1 | 1 |
| Potassium | ppm | ASTM D5185(m) | >20 | 1 | <1 | <1 |
| Water | | WC Method | >0.1 | NEG | NEG | NEG |
| Particles >4µm | | ASTM D7647 | >20000 | 6471 | 616 | 504 |
| Particles >6µm | | ASTM D7647 | >5000 | 1237 | 138 | 112 |
| Particles >14µm | | ASTM D7647 | >640 | 73 | 13 | 17 |
| Particles >21µm | | ASTM D7647 | >160 | 18 | 4 | 10 |
| Particles >38µm | | ASTM D7647 | >40 | 1 | 0 | 7 |
| Particles >71µm | | ASTM D7647 | >10 | 1 | 0 | 7 |
| Oil Cleanliness | | ISO 4406 (c) | >21/19/16 | 20/17/13 | 16/14/11 | 16/14/11 |
| 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

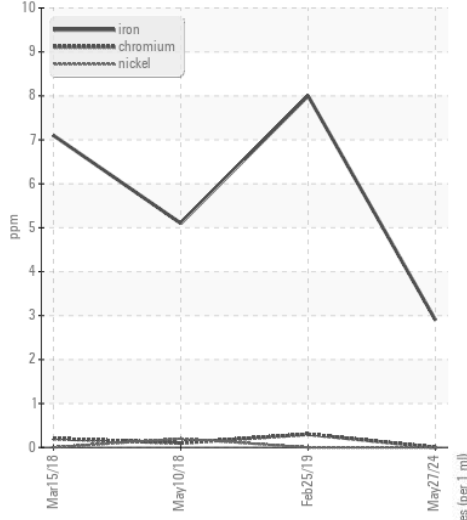
Viscosity of sample indicates oil is within SAE 10W range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The condition of the oil is acceptable for the time in service.

| | | | | | | |
|-------------|-----|---------------|------|--------------|-------|-------|
| Sodium | ppm | ASTM D5185(m) | | 3 | 2 | 2 |
| Boron | ppm | ASTM D5185(m) | 5 | 41 | 1 | <1 |
| Barium | ppm | ASTM D5185(m) | 5 | <1 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 5 | 14 | <1 | 1 |
| Manganese | ppm | ASTM D5185(m) | | 0 | 0 | <1 |
| Magnesium | ppm | ASTM D5185(m) | 25 | 210 | 53 | 46 |
| Calcium | ppm | ASTM D5185(m) | 200 | 1084 | 827 | 856 |
| Phosphorus | ppm | ASTM D5185(m) | 300 | 662 | 500 | 492 |
| Zinc | ppm | ASTM D5185(m) | 370 | 749 | 575 | 585 |
| Sulfur | ppm | ASTM D5185(m) | 2500 | 2293 | 3853 | 3482 |
| Visc @ 40°C | cSt | ASTM D7279(m) | 68 | 42.4 | 50.76 | 51.58 |

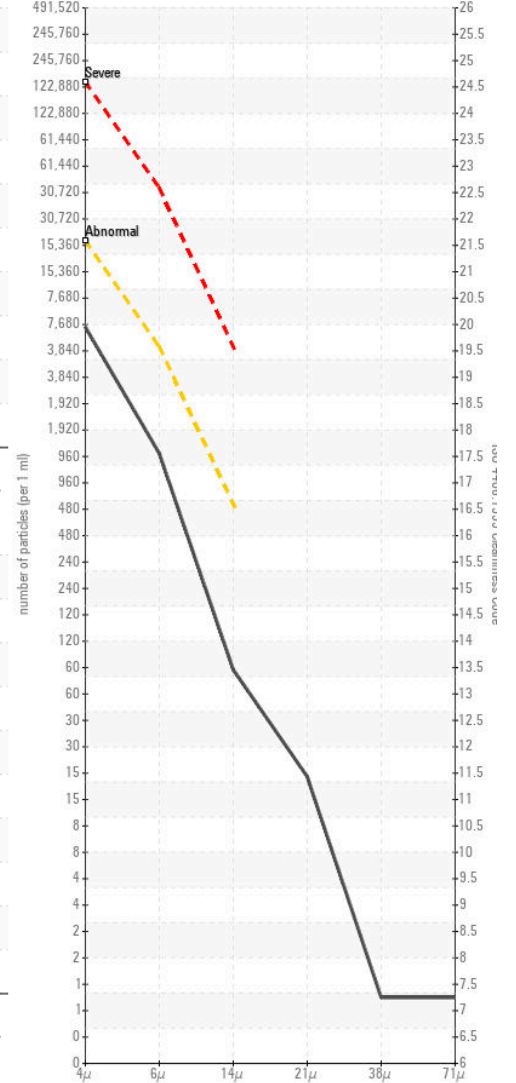
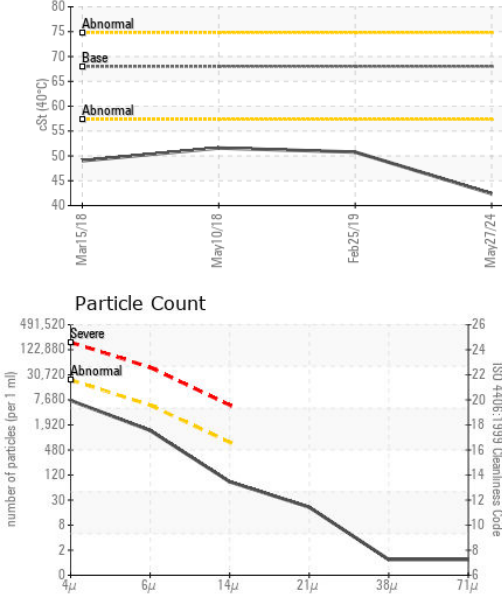
▲ Viscosity @ 40°C



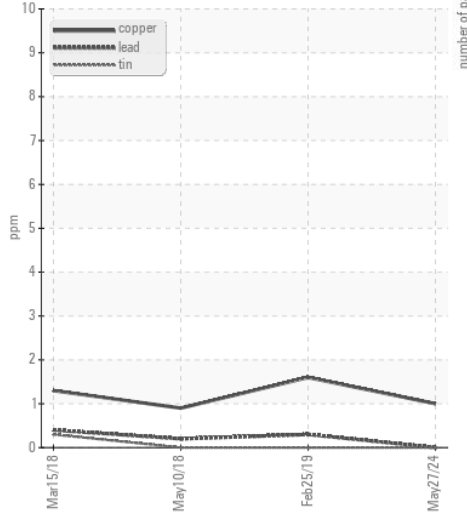
Ferrous Alloys



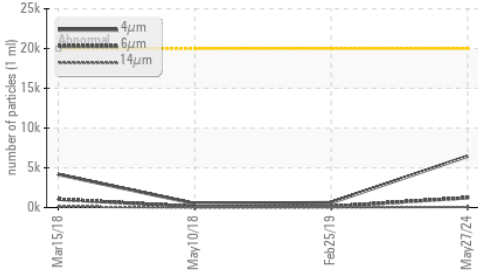
Particle Count



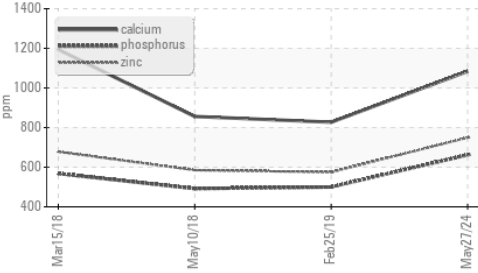
Non-ferrous Metals



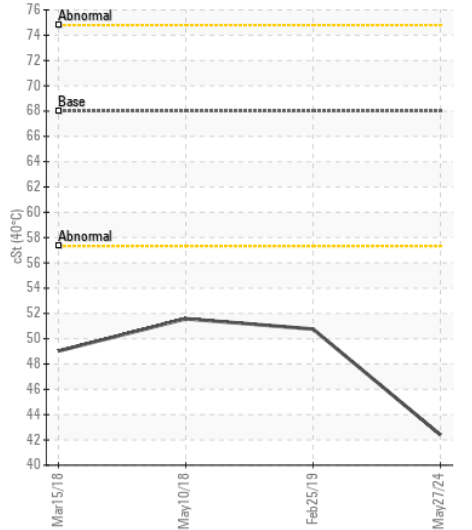
Particle Trend



Additives



▲ Viscosity @ 40°C



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : LH0289808
Lab Number : 02639660
Unique Number : 5788822
Test Package : MOB 1 (Additional Tests: PrtCount)
Received : 04 Jun 2024
Tested : 05 Jun 2024
Diagnosed : 06 Jun 2024 - Kevin Marson

To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.

SIMS BROTHERS
 1011 S. PROSPECT ST
 MARION, OH
 US 43302
 Contact: BOB LANCE

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