MOB

# LIEBHERR

OIL ANALYSIS REPORT

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

Area
**(348643)**
Machine Id
**LIEBHERR PR736LGP 018793-1155**
Component
**Hydraulic System**
Fluid
**AW HYDRAULIC OIL ISO 32 (--- GAL)**

## RECOMMENDATION

The filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

## WEAR

All component wear rates are normal.

## CONTAMINATION

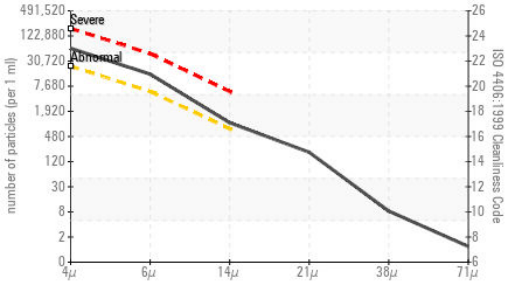
There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

## FLUID CONDITION

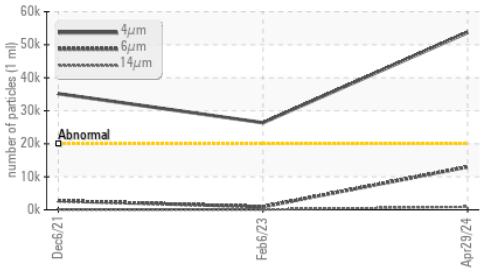
The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | LH0199306 | LH0199298 | LH0199290 |
| Sample Date | | Client Info | | 29 Apr 2024 | 06 Feb 2023 | 06 Dec 2021 |
| Machine Age | hrs | Client Info | | 3004 | 1978 | 1074 |
| Oil Age | hrs | Client Info | | 0 | 0 | 0 |
| Filter Age | hrs | Client Info | | 0 | 0 | 0 |
| Oil Changed | | Client Info | | Not Changd | Changed | Not Changd |
| Filter Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | ABNORMAL | ATTENTION | ATTENTION |
| Iron | ppm | ASTM D5185(m) | >20 | 14 | 22 | 14 |
| Chromium | ppm | ASTM D5185(m) | >10 | 0 | <1 | <1 |
| Nickel | ppm | ASTM D5185(m) | >10 | 0 | <1 | <1 |
| Titanium | ppm | ASTM D5185(m) | | 0 | <1 | 0 |
| Silver | ppm | ASTM D5185(m) | | 0 | 0 | <1 |
| Aluminum | ppm | ASTM D5185(m) | >10 | 2 | 2 | <1 |
| Lead | ppm | ASTM D5185(m) | >10 | <1 | 1 | 1 |
| Copper | ppm | ASTM D5185(m) | >75 | 8 | 10 | 7 |
| Tin | ppm | ASTM D5185(m) | >10 | 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 |
| Silicon | ppm | ASTM D5185(m) | >20 | 2 | 4 | 3 |
| Potassium | ppm | ASTM D5185(m) | >20 | 1 | 2 | 2 |
| Water | | WC Method | >0.1 | NEG | NEG | NEG |
| Particles >4µm | | ASTM D7647 | >20000 | ▲ 53700 | ● 26374 | ● 35168 |
| Particles >6µm | | ASTM D7647 | >5000 | ▲ 12985 | 924 | 2715 |
| Particles >14µm | | ASTM D7647 | >640 | ● 899 | 74 | 60 |
| Particles >21µm | | ASTM D7647 | >160 | 177 | 16 | 9 |
| Particles >38µm | | ASTM D7647 | >40 | 7 | 0 | 0 |
| Particles >71µm | | ASTM D7647 | >10 | 1 | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >21/19/16 | ▲ 23/21/17 | ● 22/17/13 | ● 22/19/13 |
| Silt | scalar | Visual* | NONE | VLITE | NONE | NONE |
| Debris | scalar | Visual* | NONE | NONE | NONE | VLITE |
| 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 |
| Sodium | ppm | ASTM D5185(m) | | 5 | 6 | 4 |
| Boron | ppm | ASTM D5185(m) | 5 | 2 | 4 | 4 |
| Barium | ppm | ASTM D5185(m) | 5 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 5 | <1 | 3 | 3 |
| Manganese | ppm | ASTM D5185(m) | | <1 | <1 | <1 |
| Magnesium | ppm | ASTM D5185(m) | 25 | 4 | 6 | 7 |
| Calcium | ppm | ASTM D5185(m) | 200 | 748 | 1367 | 1379 |
| Phosphorus | ppm | ASTM D5185(m) | 300 | 425 | 614 | 605 |
| Zinc | ppm | ASTM D5185(m) | 370 | 502 | 657 | 667 |
| Sulfur | ppm | ASTM D5185(m) | 2500 | 2466 | 4223 | 4240 |
| Acid Number (AN) | mg KOH/g | ASTM D974* | 0.57 | 0.85 | 1.09 | 1.49 |
| Visc @ 40°C | cSt | ASTM D7279(m) | 32 | 32.7 | 44.2 | 45.7 |

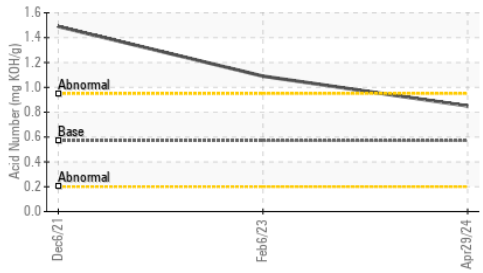
## Particle Count



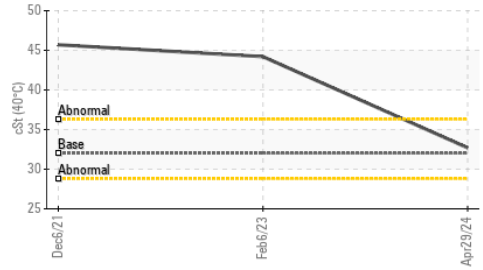

## Particle Trend



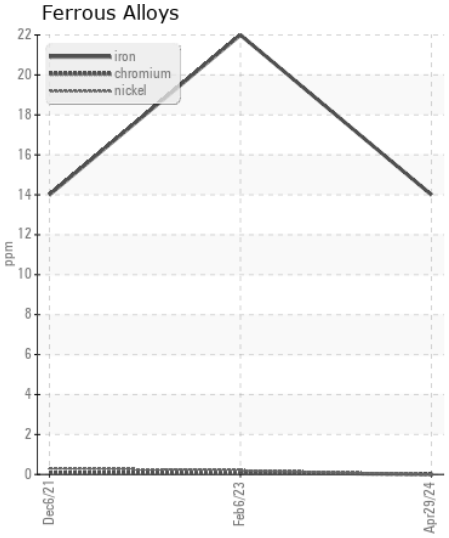

## Acid Number



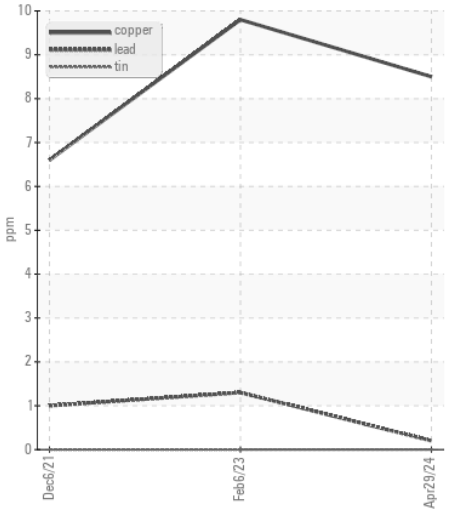

## Viscosity @ 40°C



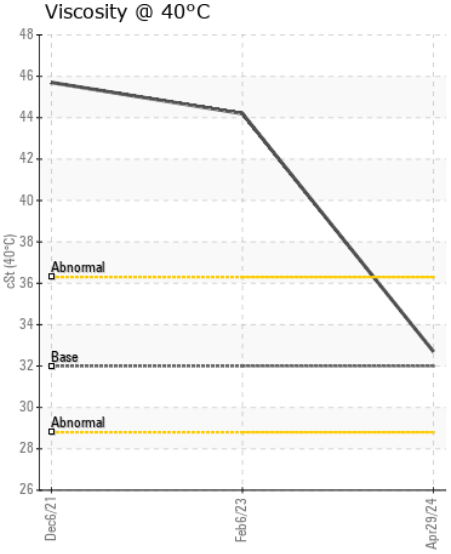

## Ferrous Alloys



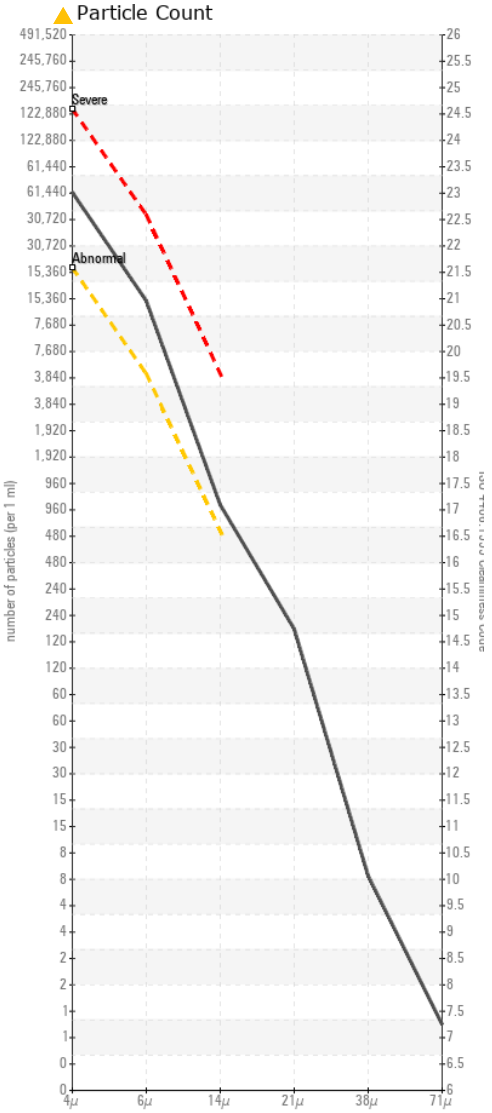

## Non-ferrous Metals



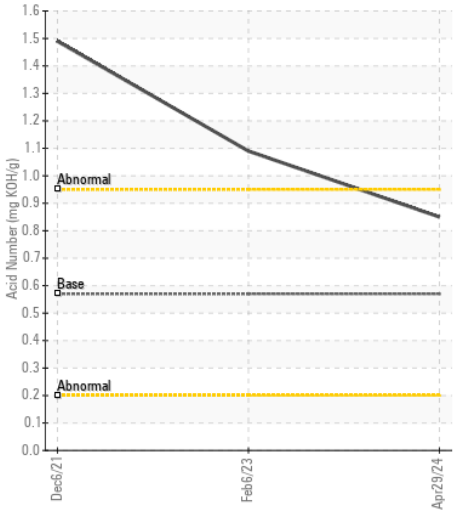

## Viscosity @ 40°C




## Particle Count




## Acid Number




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : LH0199306
**Lab Number** : 02635311
**Unique Number** : 5776464
**Test Package** : MOBCE

**Received** : 14 May 2024
**Tested** : 15 May 2024
**Diagnosed** : 15 May 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.*

**COUNTY OF ST. PAUL NO. 19**
5015 - 49 AVENUE
ST. PAUL, AB
CA T0A 3A4
Contact: DD SKAWRONSKI-MUNRO
DSKAWRONSKI@COUNTY.STPAUL.AB.CA
T: (780)645-3006
F: (780)645-1800