



OIL ANALYSIS REPORT

WEAR
CONTAMINATION
FLUID CONDITION

ATTENTION
ABNORMAL
NORMAL

Machine Id
LIEBHERR 31255

Component
Left Final Drive

Fluid
CHEVRON DELO GEAR ESI OIL 80W90 (--- GAL)

RECOMMENDATION

We advise that you check all areas where dirt can enter the system. The oil change at the time of sampling has been noted. Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | WC0924659 | WC0882590 | WC0857052 |
| Sample Date | | Client Info | | 28 May 2024 | 03 Feb 2024 | 03 Nov 2023 |
| Machine Age | hrs | Client Info | | 2206 | 1891 | 1573 |
| Oil Age | hrs | Client Info | | 2000 | 250 | 1500 |
| Filter Age | hrs | Client Info | | 2000 | 0 | 1500 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | N/A | Changed |
| Sample Status | | | | ABNORMAL | ABNORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >500 | 192 | 115 | 46 |
| Chromium | ppm | ASTM D5185m | >10 | 2 | 1 | <1 |
| Nickel | ppm | ASTM D5185m | >10 | <1 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | 2 | 2 | <1 |
| Silver | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | 55 | 40 | 3 |
| Lead | ppm | ASTM D5185m | >25 | <1 | 0 | 0 |
| Copper | ppm | ASTM D5185m | >50 | <1 | 0 | 0 |
| Tin | ppm | ASTM D5185m | >10 | <1 | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

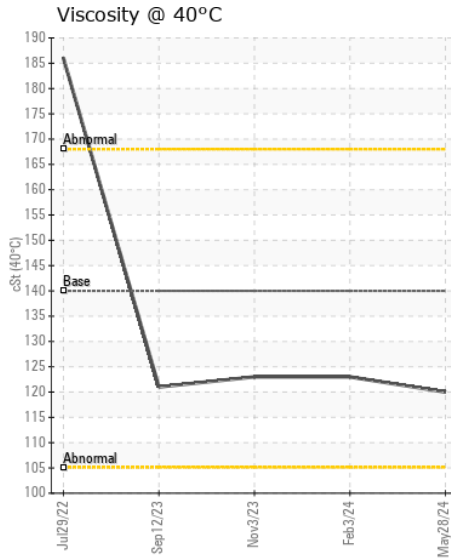
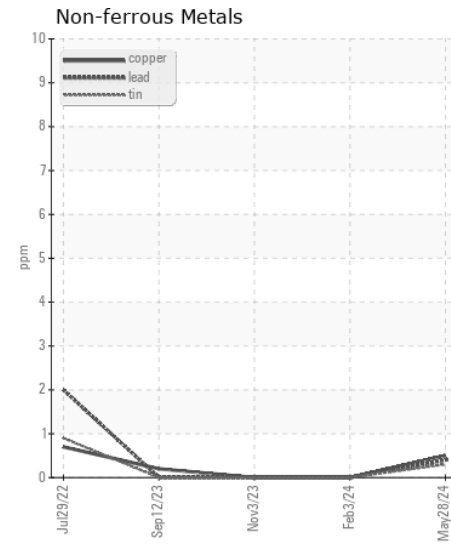
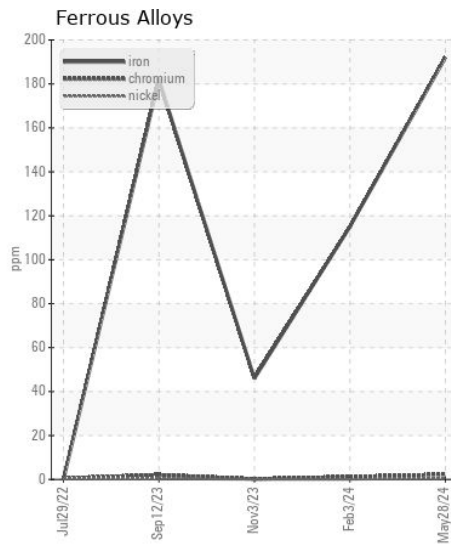
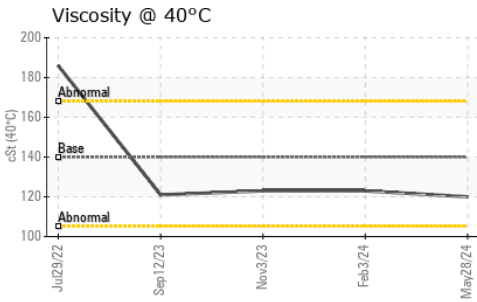
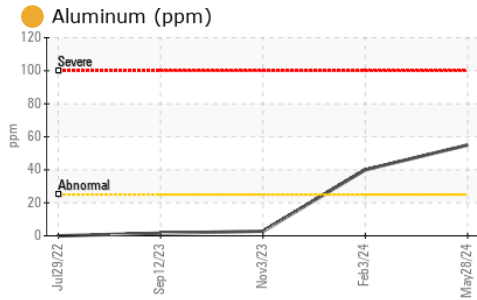
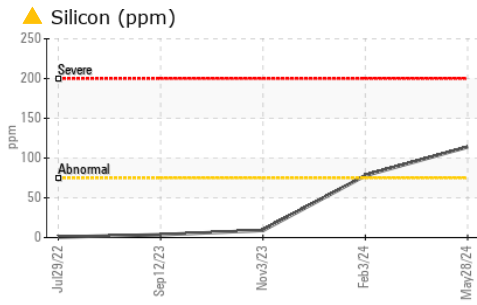
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

| | | | | | | |
|------------------|--------|-------------|-------|--------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >75 | ▲ 114 | ▲ 78 | 9 |
| Potassium | ppm | ASTM D5185m | >20 | 13 | 6 | <1 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Silt | scalar | *Visual | NONE | NONE | LIGHT | 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 | >0.2 | NEG | NEG | NEG |

FLUID CONDITION

The condition of the oil is acceptable for the time in service.

| | | | | | | |
|-------------|-----|-------------|-------|--------------|-------|-------|
| Sodium | ppm | ASTM D5185m | | 3 | 4 | 2 |
| Boron | ppm | ASTM D5185m | 15 | 90 | 113 | 124 |
| Barium | ppm | ASTM D5185m | 0 | 1 | <1 | 0 |
| Molybdenum | ppm | ASTM D5185m | 0 | 7 | 5 | 6 |
| Manganese | ppm | ASTM D5185m | | 1 | 1 | <1 |
| Magnesium | ppm | ASTM D5185m | 0 | 25 | 24 | 20 |
| Calcium | ppm | ASTM D5185m | 5 | 80 | 86 | 85 |
| Phosphorus | ppm | ASTM D5185m | 600 | 1830 | 1754 | 1697 |
| Zinc | ppm | ASTM D5185m | 0 | 81 | 76 | 84 |
| Sulfur | ppm | ASTM D5185m | 22000 | 19708 | 16473 | 17165 |
| Visc @ 40°C | cSt | ASTM D445 | 140 | 120 | 123 | 123 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0924659
Lab Number : 06196067
Unique Number : 11058190
Test Package : CONST

Received : 30 May 2024
Tested : 03 Jun 2024
Diagnosed : 03 Jun 2024 - Sean Felton

SULLIVAN EASTERN INC-LIEBHERR
 2860 C SLATER RD
 MORRISVILLE, NC
 US 27560
 Contact: CHRIS CALTON

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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