



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

Area
TODD BROWN
Machine Id
[TODD BROWN] 001 587214-1
Component
Port Main Engine
Fluid
CHEVRON DELO 400 LE 15W40 (52 GAL)

RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | MW0055456 | MW0042516 | MW0042985 |
| Sample Date | | Client Info | | 01 Jan 2024 | 01 Nov 2023 | 01 May 2023 |
| Machine Age | hrs | Client Info | | 48787 | 47333 | 44253 |
| Oil Age | hrs | Client Info | | 2902 | 1428 | 2513 |
| Filter Age | hrs | Client Info | | 1372 | 1428 | 92 |
| Oil Changed | | Client Info | | N/A | Not Changd | N/A |
| Filter Changed | | Client Info | | N/A | Not Changd | N/A |
| Sample Status | | | | ABNORMAL | ABNORMAL | ABNORMAL |

WEAR

The lead level is abnormal. All other component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >75 | 11 | 8 | 11 |
| Chromium | ppm | ASTM D5185m | >8 | <1 | 0 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >3 | <1 | <1 | <1 |
| Silver | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >15 | 3 | 3 | 2 |
| Lead | ppm | ASTM D5185m | >18 | ▲ 34 | ▲ 22 | ▲ 33 |
| Copper | ppm | ASTM D5185m | >80 | 13 | 9 | 11 |
| Tin | ppm | ASTM D5185m | >14 | <1 | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 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.

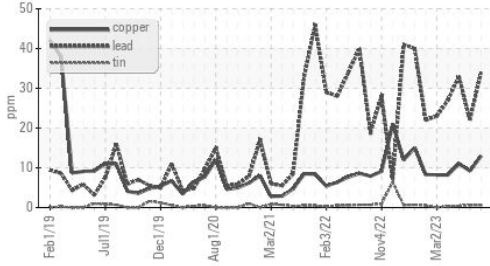
| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >20 | 8 | 7 | 7 |
| Potassium | ppm | ASTM D5185m | >20 | <1 | <1 | <1 |
| Fuel | | WC Method | >4.0 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.1 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | | 0.4 | 0.4 | 0.5 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 8.5 | 7.8 | 8.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 24.4 | 23.6 | 25.3 |
| 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

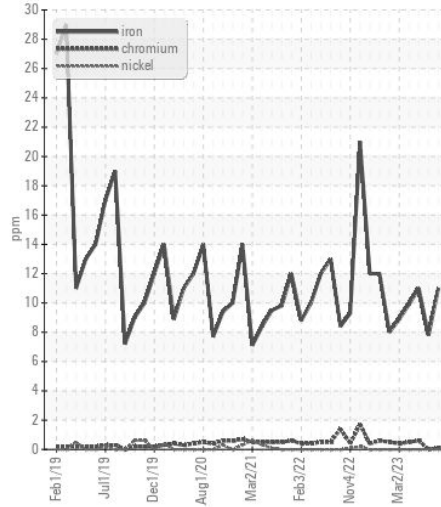
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| | | | | | | |
|------------------|----------|-------------|------|--------------|------|------|
| Sodium | ppm | ASTM D5185m | >75 | <1 | <1 | 1 |
| Boron | ppm | ASTM D5185m | | 244 | 262 | 228 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | 120 | 117 | 114 |
| Manganese | ppm | ASTM D5185m | | 1 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | 624 | 614 | 656 |
| Calcium | ppm | ASTM D5185m | | 1638 | 1596 | 1670 |
| Phosphorus | ppm | ASTM D5185m | 1200 | 768 | 779 | 693 |
| Zinc | ppm | ASTM D5185m | 1300 | 895 | 892 | 871 |
| Sulfur | ppm | ASTM D5185m | 3200 | 2657 | 2673 | 3097 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 18.4 | 16.9 | 19.1 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.6 | 7.16 | 7.98 | 8.39 |
| Visc @ 100°C | cSt | ASTM D445 | 15.7 | 13.5 | 13.5 | 13.6 |

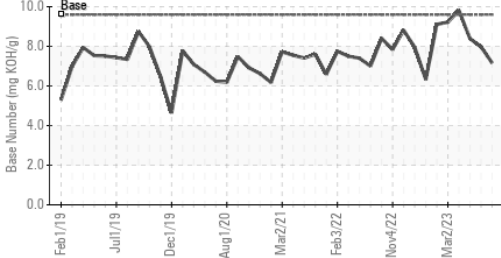
▲ Non-ferrous Metals



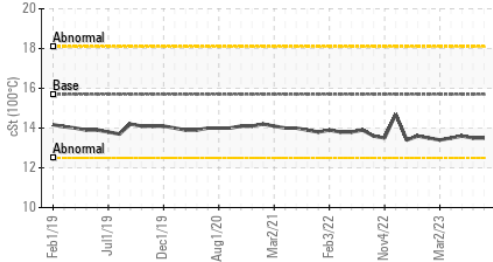
Ferrous Alloys



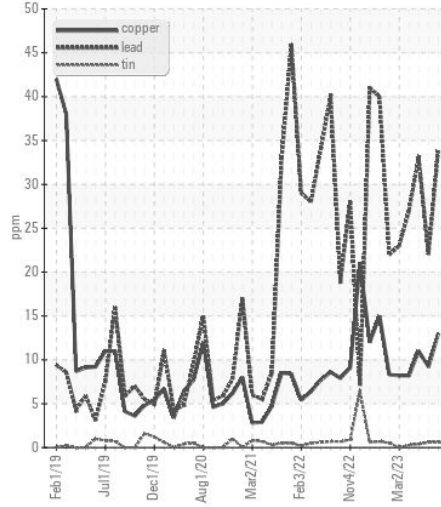
Base Number



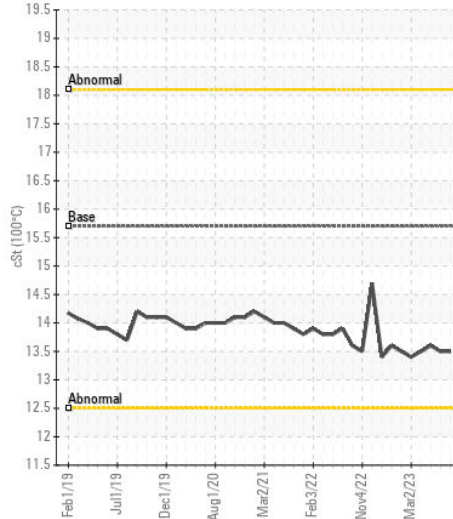
Viscosity @ 100°C



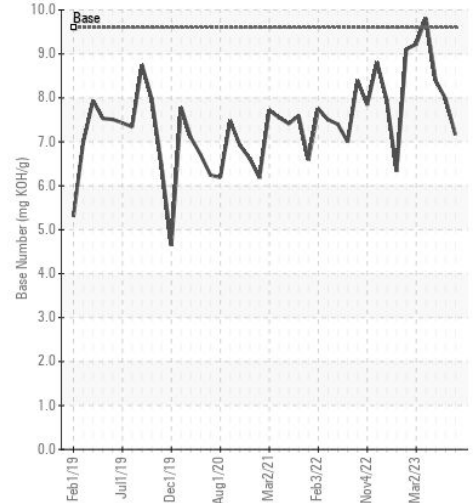
▲ Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0055456 **Received** : 12 Jan 2024
Lab Number : 06060421 **Diagnosed** : 16 Jan 2024
Unique Number : 10831803 **Diagnostician** : Don Baldrige
Test Package : MAR 2

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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