



# OIL ANALYSIS REPORT

|                 |               |
|-----------------|---------------|
| WEAR            | <b>NORMAL</b> |
| CONTAMINATION   | <b>NORMAL</b> |
| FLUID CONDITION | <b>NORMAL</b> |

Machine Id  
**GLENN S**  
Component  
**Diesel Engine**  
Fluid  
**CHEVRON DELO 400 MULTIGRADE 15W40 (--- GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>WC0759580</b>   | WC0759484   | WC0720267   |
| Sample Date    |     | Client Info |           | <b>11 Sep 2023</b> | 15 Aug 2023 | 28 Jul 2022 |
| Machine Age    | hrs | Client Info |           | <b>23326</b>       | 23147       | 19443       |
| Oil Age        | hrs | Client Info |           | <b>500</b>         | 500         | 500         |
| Filter Age     | hrs | Client Info |           | <b>500</b>         | 500         | 500         |
| Oil Changed    |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Filter Changed |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Sample Status  |     |             |           | <b>NORMAL</b>      | NORMAL      | NORMAL      |

## WEAR

All component wear rates are normal.

|              |        |             |      |              |      |      |
|--------------|--------|-------------|------|--------------|------|------|
| Iron         | ppm    | ASTM D5185m | >90  | <b>4</b>     | 4    | 19   |
| Chromium     | ppm    | ASTM D5185m | >20  | <b>&lt;1</b> | <1   | 2    |
| Nickel       | ppm    | ASTM D5185m | >2   | <b>0</b>     | <1   | 0    |
| Titanium     | ppm    | ASTM D5185m | >2   | <b>&lt;1</b> | 0    | <1   |
| Silver       | ppm    | ASTM D5185m | >2   | <b>0</b>     | 0    | <1   |
| Aluminum     | ppm    | ASTM D5185m | >20  | <b>0</b>     | 3    | 1    |
| Lead         | ppm    | ASTM D5185m | >40  | <b>3</b>     | 2    | 5    |
| Copper       | ppm    | ASTM D5185m | >330 | <b>&lt;1</b> | 1    | 14   |
| Tin          | ppm    | ASTM D5185m | >15  | <b>&lt;1</b> | <1   | 3    |
| Vanadium     | ppm    | ASTM D5185m |      | <b>&lt;1</b> | 0    | 0    |
| White Metal  | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |
| Yellow Metal | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |

## CONTAMINATION

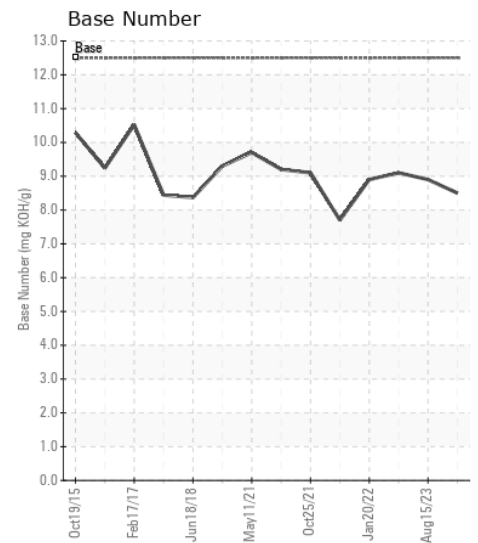
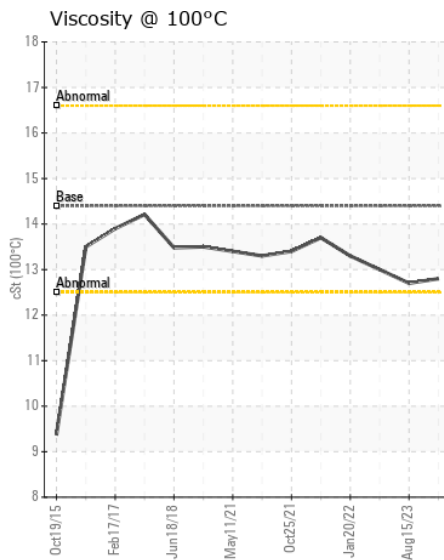
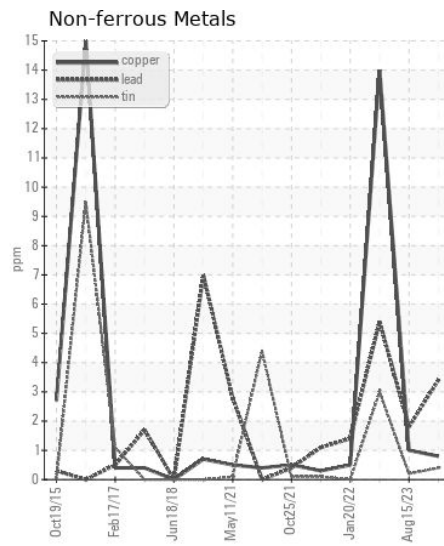
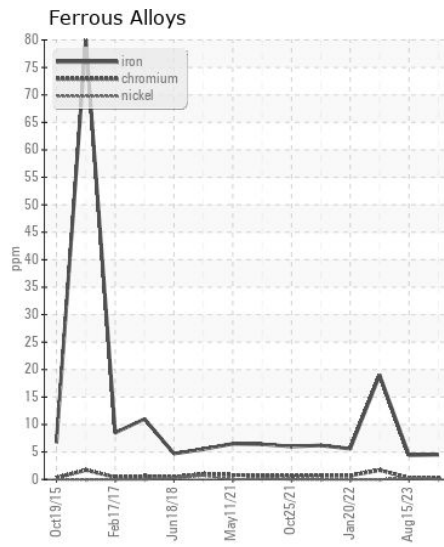
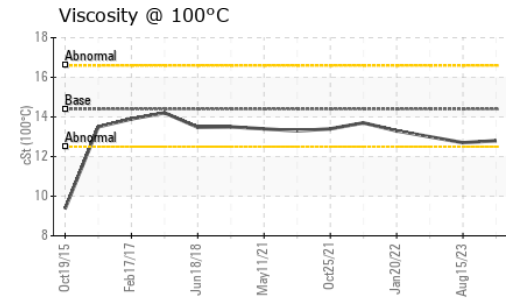
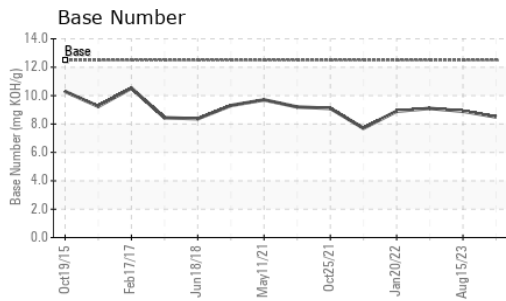
There is no indication of any contamination in the oil.

|                  |          |             |       |                |       |       |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon          | ppm      | ASTM D5185m | >25   | <b>6</b>       | 6     | 17    |
| Potassium        | ppm      | ASTM D5185m | >20   | <b>&lt;1</b>   | <1    | 0     |
| Fuel             |          | WC Method   | >3.0  | <b>&lt;1.0</b> | <1.0  | <1.0  |
| Water            |          | WC Method   | >0.2  | <b>NEG</b>     | NEG   | NEG   |
| Glycol           |          | WC Method   |       | <b>NEG</b>     | NEG   | NEG   |
| Soot %           | %        | *ASTM D7844 | >6    | <b>0.2</b>     | 0.1   | 0.2   |
| Nitration        | Abs/cm   | *ASTM D7624 | >20   | <b>7.2</b>     | 7.1   | 6.8   |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | <b>22.7</b>    | 23.3  | 21.5  |
| Silt             | scalar   | *Visual     | NONE  | <b>NONE</b>    | NONE  | NONE  |
| Debris           | scalar   | *Visual     | NONE  | <b>NONE</b>    | NONE  | NONE  |
| Sand/Dirt        | scalar   | *Visual     | NONE  | <b>NONE</b>    | NONE  | NONE  |
| Appearance       | scalar   | *Visual     | NORML | <b>NORML</b>   | NORML | NORML |
| Odor             | scalar   | *Visual     | NORML | <b>NORML</b>   | NORML | NORML |
| Emulsified Water | scalar   | *Visual     | >0.2  | <b>NEG</b>     | 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 |      | <b>2</b>     | <1   | 5    |
| Boron            | ppm      | ASTM D5185m | 151  | <b>328</b>   | 348  | 391  |
| Barium           | ppm      | ASTM D5185m | 0.4  | <b>0</b>     | 3    | 1    |
| Molybdenum       | ppm      | ASTM D5185m | 250  | <b>123</b>   | 135  | 74   |
| Manganese        | ppm      | ASTM D5185m |      | <b>&lt;1</b> | <1   | <1   |
| Magnesium        | ppm      | ASTM D5185m | 0    | <b>664</b>   | 654  | 467  |
| Calcium          | ppm      | ASTM D5185m | 2046 | <b>1636</b>  | 1594 | 1431 |
| Phosphorus       | ppm      | ASTM D5185m | 1043 | <b>691</b>   | 715  | 943  |
| Zinc             | ppm      | ASTM D5185m | 943  | <b>853</b>   | 866  | 1172 |
| Sulfur           | ppm      | ASTM D5185m | 5012 | <b>2913</b>  | 2688 | 3704 |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25  | <b>17.0</b>  | 17.2 | 15.0 |
| Base Number (BN) | mg KOH/g | ASTM D2896  | 12.5 | <b>8.5</b>   | 8.9  | 9.1  |
| Visc @ 100°C     | cSt      | ASTM D445   | 14.4 | <b>12.8</b>  | 12.7 | 13.0 |



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0759580 **Received** : 25 Sep 2023  
**Lab Number** : 05960402 **Diagnosed** : 26 Sep 2023  
**Unique Number** : 10661615 **Diagnostician** : Wes Davis  
**Test Package** : FLEET

**ASSOCIATED TERMINALS - CRANE**

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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)