



# OIL ANALYSIS REPORT

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

Area  
**Store 9 - Marietta**

Machine Id  
**FREIGHTLINER 1041**

Component  
**Diesel Engine**

Fluid  
**SHELL ROTELLA T 15W40 (10 GAL)**

## RECOMMENDATION

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>LEC0049548</b>  | LEC0049233  | LEC0048379  |
| Sample Date    |     | Client Info |           | <b>06 May 2024</b> | 14 Apr 2024 | 16 Mar 2024 |
| Machine Age    | mls | Client Info |           | <b>1262007</b>     | 169808      | 157453      |
| Oil Age        | mls | Client Info |           | <b>10000</b>       | 10000       | 10000       |
| Filter Age     | mls | Client Info |           | <b>10000</b>       | 10000       | 10000       |
| Oil Changed    |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Filter Changed |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Sample Status  |     |             |           | <b>SEVERE</b>      | SEVERE      | SEVERE      |

## WEAR

All component wear rates are normal.

|              |        |             |      |              |      |      |
|--------------|--------|-------------|------|--------------|------|------|
| Iron         | ppm    | ASTM D5185m | >80  | <b>18</b>    | 20   | 17   |
| Chromium     | ppm    | ASTM D5185m | >5   | <b>&lt;1</b> | <1   | 0    |
| Nickel       | ppm    | ASTM D5185m | >2   | <b>0</b>     | 0    | 0    |
| Titanium     | ppm    | ASTM D5185m |      | <b>2</b>     | <1   | 2    |
| Silver       | ppm    | ASTM D5185m | >3   | <b>0</b>     | 0    | 0    |
| Aluminum     | ppm    | ASTM D5185m | >30  | <b>5</b>     | 7    | 4    |
| Lead         | ppm    | ASTM D5185m | >30  | <b>3</b>     | <1   | 10   |
| Copper       | ppm    | ASTM D5185m | >150 | <b>&lt;1</b> | 2    | <1   |
| Tin          | ppm    | ASTM D5185m | >5   | <b>0</b>     | 0    | 0    |
| Vanadium     | ppm    | ASTM D5185m |      | <b>0</b>     | 0    | 0    |
| White Metal  | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |
| Yellow Metal | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |

## CONTAMINATION

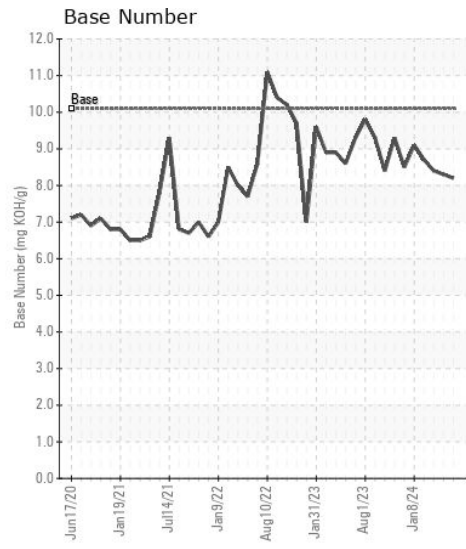
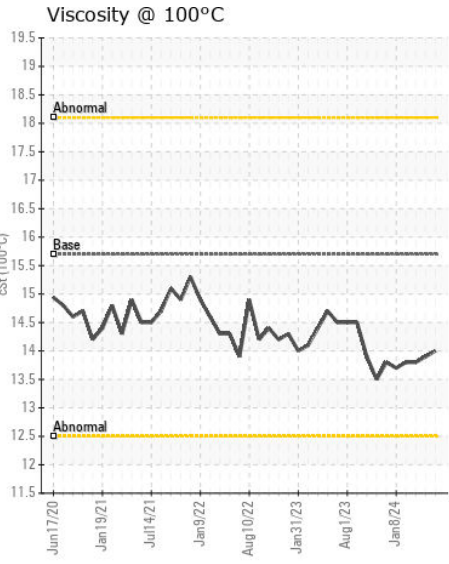
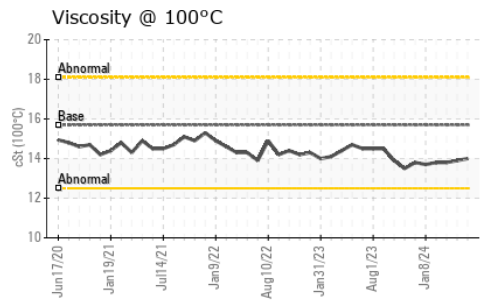
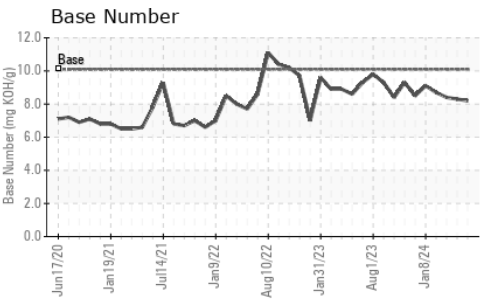
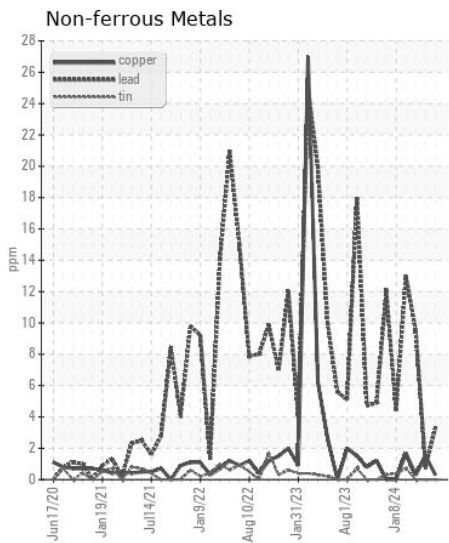
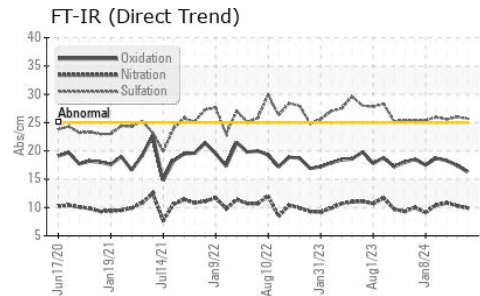
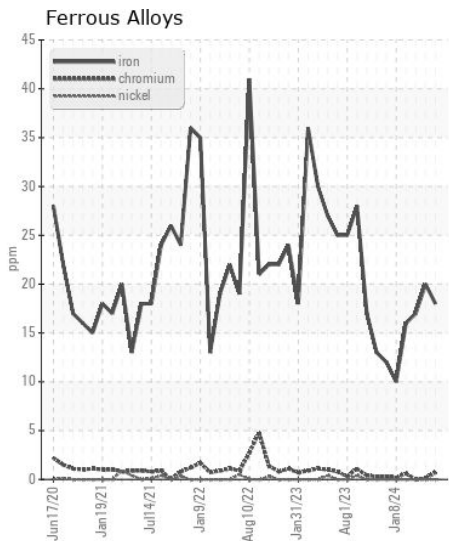
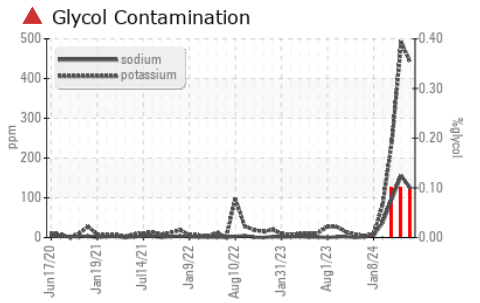
Sodium and/or potassium levels are high. Test for glycol is positive.

|                  |          |             |       |                |       |       |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon          | ppm      | ASTM D5185m | >120  | <b>6</b>       | 6     | 6     |
| Potassium        | ppm      | ASTM D5185m | >20   | <b>439</b>     | 492   | 242   |
| Fuel             |          | WC Method   | >5    | <b>&lt;1.0</b> | <1.0  | <1.0  |
| Water            |          | WC Method   | >0.2  | <b>NEG</b>     | NEG   | NEG   |
| Glycol           | %        | *ASTM D2982 |       | <b>0.10</b>    | 0.10  | 0.10  |
| Soot %           | %        | *ASTM D7844 | >3    | <b>1.9</b>     | 1.6   | 1.5   |
| Nitration        | Abs/cm   | *ASTM D7624 | >20   | <b>9.9</b>     | 10.3  | 10.8  |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | <b>25.7</b>    | 26.0  | 25.6  |
| 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.

|                  |          |             |      |              |      |      |
|------------------|----------|-------------|------|--------------|------|------|
| Sodium           | ppm      | ASTM D5185m |      | <b>124</b>   | 156  | 98   |
| Boron            | ppm      | ASTM D5185m | 316  | <b>224</b>   | 215  | 147  |
| Barium           | ppm      | ASTM D5185m | 0.0  | <b>&lt;1</b> | 0    | 0    |
| Molybdenum       | ppm      | ASTM D5185m | 1.2  | <b>145</b>   | 167  | 156  |
| Manganese        | ppm      | ASTM D5185m |      | <b>&lt;1</b> | <1   | 0    |
| Magnesium        | ppm      | ASTM D5185m | 24   | <b>456</b>   | 535  | 701  |
| Calcium          | ppm      | ASTM D5185m | 2292 | <b>1505</b>  | 1525 | 1615 |
| Phosphorus       | ppm      | ASTM D5185m | 1064 | <b>1018</b>  | 961  | 761  |
| Zinc             | ppm      | ASTM D5185m | 1160 | <b>1212</b>  | 1141 | 893  |
| Sulfur           | ppm      | ASTM D5185m | 4996 | <b>3813</b>  | 3537 | 3167 |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25  | <b>16.3</b>  | 17.4 | 18.3 |
| Base Number (BN) | mg KOH/g | ASTM D2896  | 10.1 | <b>8.2</b>   | 8.3  | 8.4  |
| Visc @ 100°C     | cSt      | ASTM D445   | 15.7 | <b>14.0</b>  | 13.9 | 13.8 |



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : LEC0049548  
**Lab Number** : 06176991  
**Unique Number** : 11023044  
**Test Package** : CONST ( Additional Tests: TBN )

**Received** : 13 May 2024  
**Tested** : 17 May 2024  
**Diagnosed** : 17 May 2024 - Jonathan Hester

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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)