



OIL ANALYSIS REPORT

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

Area  
**Store 9 - Marietta**  
Machine Id  
**JOHN DEERE 5001**  
Component  
**Diesel Engine**  
Fluid  
**LYDEN 15W40 (--- GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>LEC0049508</b>  | LEC0041341  | LEC0034639  |
| Sample Date    |     | Client Info |           | <b>16 May 2024</b> | 14 Jul 2023 | 31 Jan 2023 |
| Machine Age    | hrs | Client Info |           | <b>1484</b>        | 1257        | 1037        |
| Oil Age        | hrs | Client Info |           | <b>217</b>         | 230         | 289         |
| Filter Age     | hrs | Client Info |           | <b>217</b>         | 230         | 289         |
| 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 | >51  | <b>10</b>    | 8    | 9    |
| Chromium     | ppm    | ASTM D5185m | >11  | <b>&lt;1</b> | <1   | 0    |
| Nickel       | ppm    | ASTM D5185m | >5   | <b>1</b>     | 0    | 0    |
| Titanium     | ppm    | ASTM D5185m |      | <b>64</b>    | 25   | 79   |
| Silver       | ppm    | ASTM D5185m | >3   | <b>1</b>     | 0    | 0    |
| Aluminum     | ppm    | ASTM D5185m | >31  | <b>2</b>     | 4    | 1    |
| Lead         | ppm    | ASTM D5185m | >26  | <b>1</b>     | 0    | 0    |
| Copper       | ppm    | ASTM D5185m | >26  | <b>4</b>     | 5    | 10   |
| Tin          | ppm    | ASTM D5185m | >4   | <b>&lt;1</b> | <1   | 0    |
| Vanadium     | ppm    | ASTM D5185m |      | <b>1</b>     | <1   | <1   |
| 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.

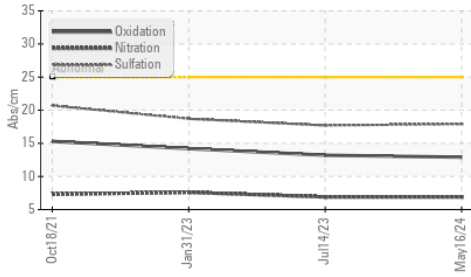
|                  |          |             |       |                |       |       |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon          | ppm      | ASTM D5185m | >120  | <b>10</b>      | 5     | 5     |
| Potassium        | ppm      | ASTM D5185m | >20   | <b>7</b>       | 3     | 3     |
| Fuel             |          | WC Method   | >2.1  | <b>&lt;1.0</b> | <1.0  | <1.0  |
| Water            |          | WC Method   | >0.21 | <b>NEG</b>     | NEG   | NEG   |
| Glycol           |          | WC Method   |       | <b>NEG</b>     | NEG   | NEG   |
| Soot %           | %        | *ASTM D7844 | >3    | <b>0.2</b>     | 0.2   | 0.2   |
| Nitration        | Abs/cm   | *ASTM D7624 | >20   | <b>6.9</b>     | 6.9   | 7.6   |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | <b>17.9</b>    | 17.7  | 18.7  |
| 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     | >0.21 | <b>NEG</b>     | NEG   | NEG   |

**FLUID CONDITION**

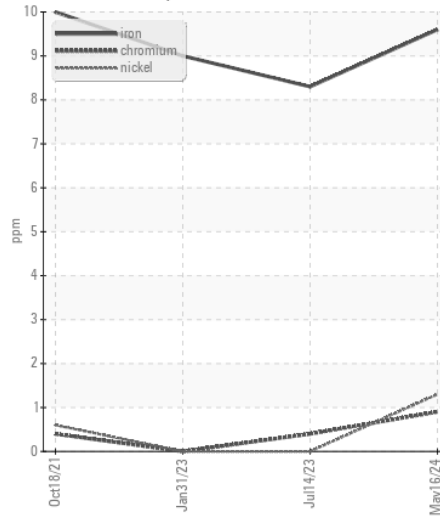
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

|                  |          |             |     |             |      |      |
|------------------|----------|-------------|-----|-------------|------|------|
| Sodium           | ppm      | ASTM D5185m | >31 | <b>4</b>    | 2    | 2    |
| Boron            | ppm      | ASTM D5185m |     | <b>126</b>  | 50   | 138  |
| Barium           | ppm      | ASTM D5185m |     | <b>0</b>    | 0    | 0    |
| Molybdenum       | ppm      | ASTM D5185m |     | <b>15</b>   | 38   | 18   |
| Manganese        | ppm      | ASTM D5185m |     | <b>1</b>    | <1   | <1   |
| Magnesium        | ppm      | ASTM D5185m |     | <b>391</b>  | 680  | 434  |
| Calcium          | ppm      | ASTM D5185m |     | <b>1636</b> | 1556 | 1675 |
| Phosphorus       | ppm      | ASTM D5185m |     | <b>1009</b> | 1045 | 980  |
| Zinc             | ppm      | ASTM D5185m |     | <b>1151</b> | 1257 | 1181 |
| Sulfur           | ppm      | ASTM D5185m |     | <b>4371</b> | 4230 | 4208 |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25 | <b>12.9</b> | 13.2 | 14.2 |
| Base Number (BN) | mg KOH/g | ASTM D2896  |     | <b>8.5</b>  | 8.9  | 8.9  |
| Visc @ 100°C     | cSt      | ASTM D445   |     | <b>12.7</b> | 13.1 | 13.0 |

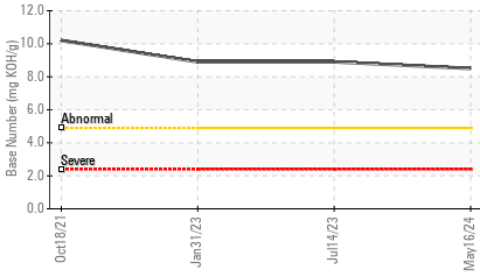
**FT-IR (Direct Trend)**



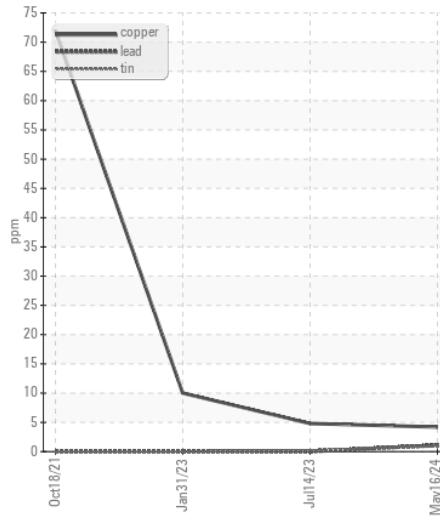
**Ferrous Alloys**



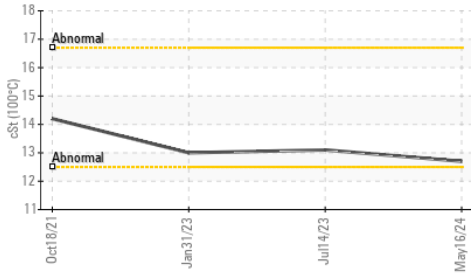
**Base Number**



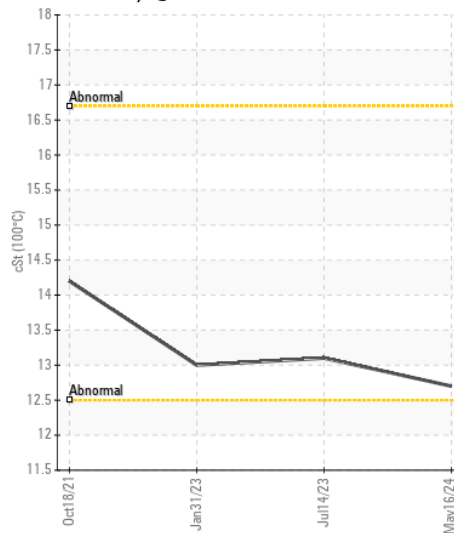
**Non-ferrous Metals**



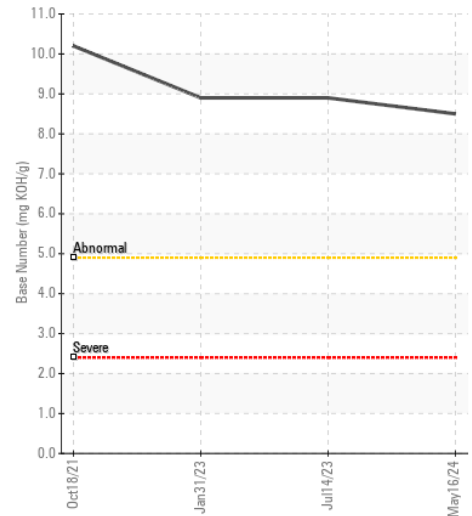
**Viscosity @ 100°C**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : LEC0049508 **Received** : 29 May 2024  
**Lab Number** : 06193647 **Tested** : 30 May 2024  
**Unique Number** : 11050399 **Diagnosed** : 30 May 2024 - Sean Felton  
**Test Package** : CONST ( Additional Tests: TBN )

**LAROCHE TREE SERVICE**  
 7 COMMERCE PKWY  
 BELLAIRE, OH  
 US 43906  
 Contact: GLEN VARGO  
 glen.vargo@larochetree.com

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)

T:  
F: