



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



Area

**[W52104]**

Machine Id

**JOHN DEERE 824K 1DW824KXCGF674522**

Component

**Diesel Engine**

Fluid

**JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (--- GAL)**

### RECOMMENDATION

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>JR0212212</b>   | JR0200469   | JR0180496   |
| Sample Date    |     | Client Info |           | <b>28 May 2024</b> | 28 Feb 2024 | 01 Dec 2023 |
| Machine Age    | hrs | Client Info |           | <b>15488</b>       | 15022       | 14622       |
| Oil Age        | hrs | Client Info |           | <b>0</b>           | 0           | 0           |
| Filter Age     | hrs | Client Info |           | <b>0</b>           | 0           | 0           |
| Oil Changed    |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Filter Changed |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Sample Status  |     |             |           | <b>NORMAL</b>      | NORMAL      | ABNORMAL    |

### WEAR

All component wear rates are normal.

|              |        |             |      |              |      |      |
|--------------|--------|-------------|------|--------------|------|------|
| Iron         | ppm    | ASTM D5185m | >51  | <b>10</b>    | 17   | 18   |
| Chromium     | ppm    | ASTM D5185m | >11  | <b>&lt;1</b> | 1    | 2    |
| Nickel       | ppm    | ASTM D5185m | >5   | <b>&lt;1</b> | 3    | ▲ 6  |
| Titanium     | ppm    | ASTM D5185m |      | <b>0</b>     | <1   | 0    |
| Silver       | ppm    | ASTM D5185m | >3   | <b>0</b>     | 0    | 0    |
| Aluminum     | ppm    | ASTM D5185m | >31  | <b>11</b>    | 10   | 14   |
| Lead         | ppm    | ASTM D5185m | >26  | <b>0</b>     | 2    | 0    |
| Copper       | ppm    | ASTM D5185m | >26  | <b>1</b>     | 2    | <1   |
| Tin          | ppm    | ASTM D5185m | >4   | <b>&lt;1</b> | <1   | 0    |
| Vanadium     | ppm    | ASTM D5185m |      | <b>0</b>     | <1   | 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.

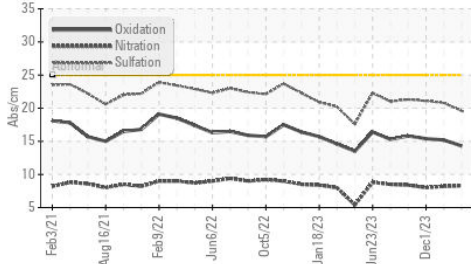
|                  |          |             |       |                |       |       |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon          | ppm      | ASTM D5185m | >22   | <b>7</b>       | 8     | 8     |
| Potassium        | ppm      | ASTM D5185m | >20   | <b>4</b>       | 5     | 6     |
| Fuel             | %        | ASTM D3524  | >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>8.3</b>     | 8.2   | 8.0   |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | <b>19.6</b>    | 20.8  | 21.1  |
| 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

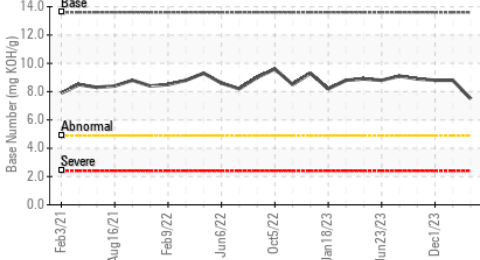
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

|                  |          |             |      |              |      |      |
|------------------|----------|-------------|------|--------------|------|------|
| Sodium           | ppm      | ASTM D5185m | >31  | <b>3</b>     | 4    | 4    |
| Boron            | ppm      | ASTM D5185m |      | <b>140</b>   | 245  | 274  |
| Barium           | ppm      | ASTM D5185m |      | <b>&lt;1</b> | 0    | 0    |
| Molybdenum       | ppm      | ASTM D5185m |      | <b>158</b>   | 250  | 263  |
| Manganese        | ppm      | ASTM D5185m |      | <b>&lt;1</b> | 0    | 0    |
| Magnesium        | ppm      | ASTM D5185m |      | <b>546</b>   | 829  | 824  |
| Calcium          | ppm      | ASTM D5185m |      | <b>1611</b>  | 1386 | 1377 |
| Phosphorus       | ppm      | ASTM D5185m |      | <b>970</b>   | 938  | 924  |
| Zinc             | ppm      | ASTM D5185m |      | <b>1122</b>  | 1116 | 1103 |
| Sulfur           | ppm      | ASTM D5185m |      | <b>3769</b>  | 3472 | 3384 |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25  | <b>14.3</b>  | 15.2 | 15.4 |
| Base Number (BN) | mg KOH/g | ASTM D2896  | 13.6 | <b>7.5</b>   | 8.8  | 8.8  |
| Visc @ 100°C     | cSt      | ASTM D445   | 15.4 | <b>12.8</b>  | 13.1 | 13.3 |

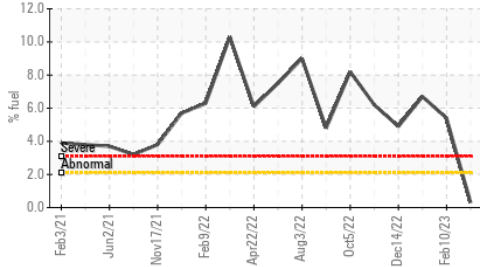
**FT-IR (Direct Trend)**



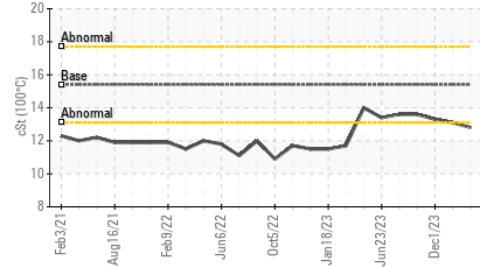
**Base Number**



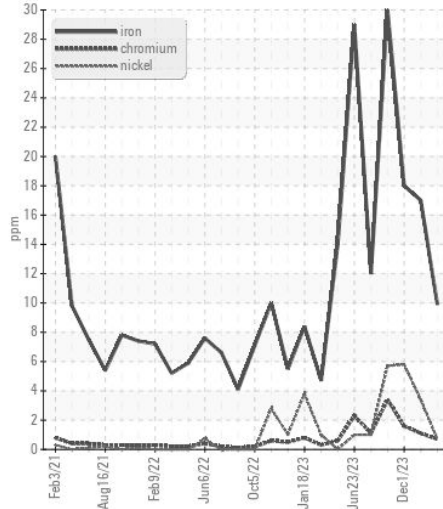
**Fuel Dilution**



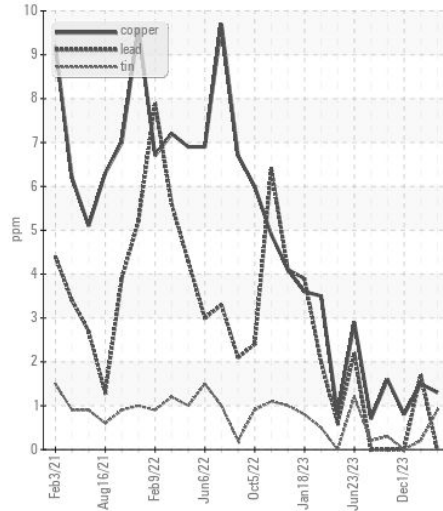
**Viscosity @ 100°C**



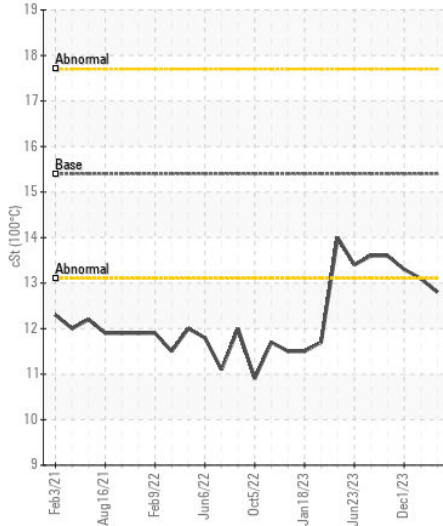
**Ferrous Alloys**



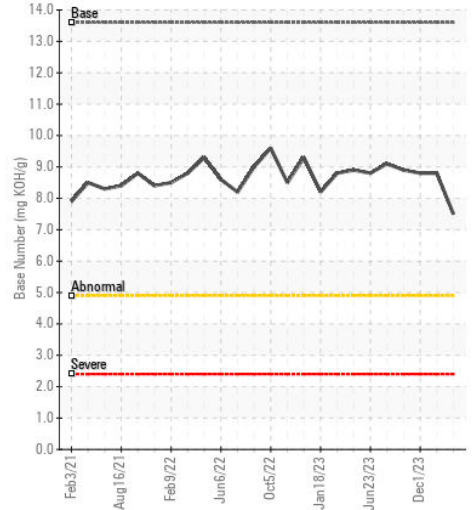
**Non-ferrous Metals**



**Viscosity @ 100°C**



**Base Number**



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : JR0212212 **Received** : 31 May 2024  
**Lab Number** : 06196390 **Tested** : 03 Jun 2024  
**Unique Number** : 11058513 **Diagnosed** : 03 Jun 2024 - Don Baldrige  
**Test Package** : CONST ( Additional Tests: FuelDilution, TBN )

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 F: (804)798-0292

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)