

## Machine Id **43405** Component **Diesel Engine** Fluid **DIESEL ENGINE OIL SAE 15W40 (--- QTS)**

| RECOMMENDATION   | Test             | UOM      | Method      | Limit/Abn | Current     | History1    | History2    |
|--|------------------|----------|-------------|-----------|-------------|-------------|-------------|
| Description of the next service interval to requiter. Discuss energia the  | Sample Number    |          | Client Info |           | WC0903101   | WC0717881   | WC0640638   |
| Resample at the next service interval to monitor. Please specify the<br>component make and model with your next sample. Please specify the | Sample Date      |          | Client Info |           | 18 Apr 2024 | 10 May 2023 | 28 Dec 2021 |
| brand, type, and viscosity of the oil on your next sample.   | Machine Age      | mls      | Client Info |           | 261710      | 0           | 0           |
| brand, type, and viscosity of the on on your next sample.  | Oil Age          | mls      | Client Info |           | 0           | 0           | 0           |
|  | Filter Age       | mls      | Client Info |           | 0           | 0           | 0           |
|  | Oil Changed      |          | Client Info |           | N/A         | N/A         | Changed     |
|  | Filter Changed   |          | Client Info |           | N/A         | N/A         | Changed     |
|  | Sample Status    |          |             |           | NORMAL      | NORMAL      | NORMAL      |
| WEAR   | Iron             | ppm      | ASTM D5185m | >100      | 8           | 9           | 8           |
|  | Chromium         | ppm      | ASTM D5185m | >20       | <1          | <1          | <1          |
| All component wear rates are normal.   | Nickel           | ppm      | ASTM D5185m |           | <1          | 0           | 0           |
|  | Titanium         | ppm      | ASTM D5185m |           | 7           | 0           | 0           |
|  | Silver           | ppm      | ASTM D5185m | >3        | 0           | 0           | 0           |
|  | Aluminum         | ppm      | ASTM D5185m |           | 2           | 1           | 2           |
|  | Lead             | ppm      | ASTM D5185m |           | _<br><1     | <1          | <1          |
|  | Copper           | ppm      | ASTM D5185m |           | <1          | <1          | 1           |
|  | Tin              | ppm      | ASTM D5185m |           | <1          | 0           | <1          |
|  | Vanadium         | ppm      | ASTM D5185m |           | <1          | 0           | 0           |
|  | White Metal      | scalar   | *Visual     | NONE      | NONE        | NONE        | NONE        |
|  | Yellow Metal     | scalar   | *Visual     | NONE      | NONE        | NONE        | NONE        |
|  |                  |          |             |           |             |             |             |
| CONTAMINATION  | Silicon          | ppm      | ASTM D5185m | >25       | 8           | 3           | 6           |
|  | Potassium        | ppm      | ASTM D5185m | >20       | 4           | 4           | 4           |
| There is no indication of any contamination in the oil.  | Fuel             |          | WC Method   | >5        | <1.0        | <1.0        | <1.0        |
|  | Water            |          | WC Method   | >0.2      | NEG         | NEG         | NEG         |
|  | Glycol           |          | WC Method   |           | NEG         | NEG         | NEG         |
|  | Soot %           | %        | *ASTM D7844 | >3        | 0.8         | 0.8         | 0.7         |
|  | Nitration        | Abs/cm   | *ASTM D7624 | >20       | 8.9         | 8.7         | 7.2         |
|  | Sulfation        | Abs/.1mm | *ASTM D7415 | >30       | 21.5        | 20.9        | 21.5        |
|  | 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     | >0.2      | NEG         | NEG         | NEG         |
| FLUID CONDITION  | Sodium           | ppm      | ASTM D5185m | >158      | 1           | 0           | 2           |
|  | Boron            | ppm      | ASTM D5185m |           | 159         | <1          | 4           |
| The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.  | Barium           | ppm      | ASTM D5185m |           | 0           | 2           | 0           |
|  | Molybdenum       | ppm      | ASTM D5185m |           | 63          | 64          | 65          |
|  | Manganese        | ppm      | ASTM D5185m |           | <1          | <1          | <1          |
|  | Magnesium        | ppm      | ASTM D5185m | 450       | 589         | 916         | 1100        |
|  | Calcium          | ppm      | ASTM D5185m |           | 1433        | 1057        | 1175        |
|  | Phosphorus       | ppm      | ASTM D5185m |           | 951         | 1029        | 1151        |
|  | Zinc             | ppm      | ASTM D5185m |           | 1054        | 1222        | 1218        |
|  |                  | PP       |             |           |             |             |             |

Sulfur

Oxidation

Visc @ 100°C cSt

ppm ASTM D5185m 4250

ASTM D445 14.4

Abs/.1mm \*ASTM D7414 >25

Base Number (BN) mg KOH/g ASTM D2896 8.5

3274

15.1

10.0

13.3

3207

10.9

15.6

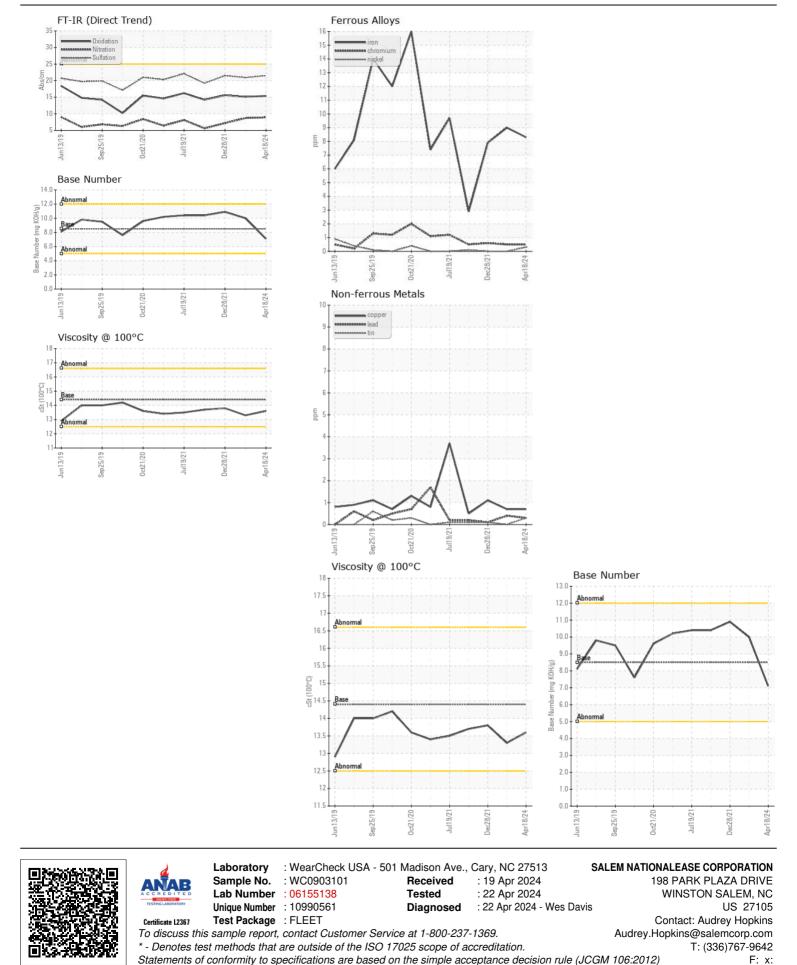
13.8

3437

15.4

7.1

13.6



Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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