

# **OIL ANALYSIS REPORT**

### Sample Rating Trend



**NORMAL** 

# K70657992 - WESTCHESTER CO VC 5 37179039

Component

**Diesel Engine** 

**MOBIL 15W40 (10 GAL)** 

#### Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the

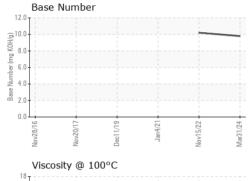
### **Fluid Condition**

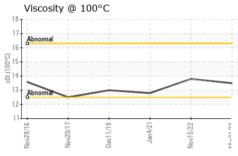
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| Nov2016 Nov2017 Doc2019 Jan2021 Nov2022 Mar2024 |                      |                           |            |             |              |             |  |  |
|---|----------------------|---------------------------|------------|-------------|--------------|-------------|--|--|
| SAMPLE INFORM                                   | MATION               | method                    | limit/base | current     | history1     | history2    |  |  |
| Sample Number                                   |                      | Client Info               |            | WC0878302   | WC0749023    | WC0513375   |  |  |
| Sample Date                                     |                      | Client Info               |            | 31 Mar 2024 | 15 Nov 2022  | 04 Jan 2021 |  |  |
| Machine Age                                     | hrs                  | Client Info               |            | 0           | 0            | 172         |  |  |
| Oil Age   | hrs                  | Client Info               |            | 0           | 0            | 0           |  |  |
| Oil Changed                                     |                      | Client Info               |            | N/A         | Changed      | N/A         |  |  |
| Sample Status                                   |                      |                           |            | NORMAL      | NORMAL       | NORMAL      |  |  |
| CONTAMINATION                                   | 1                    | method                    | limit/base | current     | history1     | history2    |  |  |
| Fuel  |                      | WC Method                 | >3.0       | <1.0        | <1.0         | <1.0        |  |  |
| Water   |                      | WC Method                 | >0.2       | NEG         | NEG          | NEG         |  |  |
| Glycol  |                      | WC Method                 |            | NEG         | NEG          | NEG         |  |  |
| WEAR METALS                                     |                      | method                    | limit/base | current     | history1     | history2    |  |  |
| Iron  | ppm                  | ASTM D5185m               | >90        | 0           | 2            | 2           |  |  |
| Chromium  | ppm                  | ASTM D5185m               | >20        | 0           | <1           | <1          |  |  |
| Nickel  | ppm                  | ASTM D5185m               | >2         | 0           | 0            | <1          |  |  |
| Titanium  | ppm                  | ASTM D5185m               | >2         | 0           | <1           | <1          |  |  |
| Silver  | ppm                  | ASTM D5185m               | >2         | 0           | 0            | 0           |  |  |
| Aluminum  | ppm                  | ASTM D5185m               | >20        | <1          | 1            | 1           |  |  |
| Lead  | ppm                  | ASTM D5185m               | >40        | 0           | <1           | 6           |  |  |
| Copper  | ppm                  | ASTM D5185m               | >330       | <1          | 24           | 66          |  |  |
| Tin   | ppm                  | ASTM D5185m               | >15        | 0           | <1           | 0           |  |  |
| Antimony  | ppm                  | ASTM D5185m               |            |             |              | 0           |  |  |
| Vanadium  | ppm                  | ASTM D5185m               |            | 0           | 0            | 0           |  |  |
| Cadmium   | ppm                  | ASTM D5185m               |            | 0           | 0            | <1          |  |  |
| ADDITIVES                                       |                      | method                    | limit/base | current     | history1     | history2    |  |  |
| Boron   | ppm                  | ASTM D5185m               |            | 14          | 41           | 13          |  |  |
| Barium  | ppm                  | ASTM D5185m               |            | 0           | 0            | 0           |  |  |
| Molybdenum                                      | ppm                  | ASTM D5185m               |            | 62          | 44           | 57          |  |  |
| Manganese                                       | ppm                  | ASTM D5185m               |            | 0           | <1           | <1          |  |  |
| Magnesium                                       | ppm                  | ASTM D5185m               |            | 1066        | 730          | 832         |  |  |
| Calcium   | ppm                  | ASTM D5185m               |            | 1252        | 1267         | 1243        |  |  |
| Phosphorus                                      | ppm                  | ASTM D5185m               |            | 1101        | 802          | 1055        |  |  |
| Zinc  | ppm                  | ASTM D5185m               |            | 1316        | 961          | 1168        |  |  |
| Sulfur  | ppm                  | ASTM D5185m               |            | 4439        | 2862         | 2669        |  |  |
| CONTAMINANTS                                    |                      | method                    | limit/base | current     | history1     | history2    |  |  |
| Silicon   | ppm                  | ASTM D5185m               | >25        | 4           | 4            | 4           |  |  |
| Sodium  | ppm                  | ASTM D5185m               | >118       | 0           | 3            | 10          |  |  |
| Potassium                                       | ppm                  | ASTM D5185m               | >20        | 2           | 2            | 20          |  |  |
| INFRA-RED                                       |                      | method                    | limit/base | current     | history1     | history2    |  |  |
| Soot %  | %                    | *ASTM D7844               | >6         | 0.1         | 0.1          | 0.1         |  |  |
| Nitration                                       | Abs/cm               | *ASTM D7624               | >20        | 4.7         | 7.2          | 5.8         |  |  |
| Sulfation                                       | Abs/.1mm             | *ASTM D7415               | >30        | 16.9        | 20.0         | 17.4        |  |  |
| FLUID DEGRADA                                   | TION                 | method                    | limit/base | current     | history1     | history2    |  |  |
|   |                      |                           |            |             |              |             |  |  |
| Oxidation                                       | Abs/.1mm             | *ASTM D7414               | >25        | 12.6        | 16.5         | 12.3        |  |  |
| Oxidation<br>Base Number (BN)                   | Abs/.1mm<br>mg KOH/g | *ASTM D7414<br>ASTM D2896 | >25        | 12.6<br>9.8 | 16.5<br>10.2 | 12.3        |  |  |



## **OIL ANALYSIS REPORT**





| VISUAL                  |        | method  |            |         |          | history2 |
|-------------------------|--------|---------|------------|---------|----------|----------|
| White Metal             | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| Yellow Metal            | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| Precipitate             | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| 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    |
| <b>Emulsified Water</b> | scalar | *Visual | >0.2       | NEG     | NEG      | NEG      |
| Free Water              | scalar | *Visual |            | NEG     | NEG      | NEG      |
| FLUID PROPERT           | TIES   | method  | limit/hase | current | history1 | history2 |

| Free Water                                 | scalar   | *Visual    |            | NEG   |            | NEG        |          | NEG        |          |
|--|----------|------------|------------|---|------------|------------|----------|------------|----------|
| FLUID PROPERT                              | TES      | method     | limit/ba   | ise curr  | ent        | history    | y1       | history2   | 2        |
| Visc @ 100°C                               | cSt      | ASTM D445  |            | 13.5  |            | 13.8       |          | 12.8       |          |
| GRAPHS                                     |          |            |            |   |            |            |          |            |          |
| Iron (ppm)                                 |          |            |            | Lead (p   | opm)       |            |          |            |          |
| 200 Severe                                 |          |            | -          | 80 Severe   |            | 1          |          |            | -        |
| 150 - Abnormal                             |          |            |            | Abnormal  |            |            |          |            |          |
| 50   |          |            |            | 20  |            |            |          |            |          |
| Nov28/16                                   | Jan4/21- | Nov15/22   | Mar31/24   | Nov28/16  | Nov20/17-  | Dec11/19   | Jan4/21- | Nov15/22   | Mar31/24 |
|  | , e      | Nov        | Mar        |   |            |            | Jai      | Nov        | Mar      |
| Aluminum (ppm)                             |          |            |            | 50 T  | ium (ppn   | 1)<br>     |          |            |          |
| 40 Severe                                  |          |            |            | 40 Severe   |            |            | -        |            | -        |
| Abnormal                                   |          |            | -          | Abnormal  |            |            |          | -          |          |
| 10   |          |            |            | 10  |            |            |          |            |          |
| Nov28/16                                   | Jan4/21  | Nov15/22 - | Mar31/24   | Nov28/16  | Nov20/17 - | Dec11/19 - | Jan4/21  | Nov15/22 - | Mar31/24 |
| နို ၌ မိ<br>Copper (ppm)                   |          | Nov        | Mar        |   |            | Dec        | 100      | Nov        | Mar      |
| 400 Severe                                 |          |            |            | Silicon   | (ppiii)    |            |          |            |          |
| 300  |          |            |            | 60  |            |            |          |            |          |
| E 200                                      |          |            |            | Abnormal  |            |            |          |            |          |
| 100  |          |            |            | 20  |            |            |          |            |          |
| Nov28/16                                   | Jan4/21  | Nov15/22   | Mar31/24   | Nov28/16  | Nov20/17 - | Dec11/19-  | Jan4/21  | Nov15/22 - | Mar31/24 |
| ِيَّ عَ عَ الْحَادِيَّةِ Viscosity @ 100°C | _        | No         | Ma         | ≨<br>Base N   |            | Dec        | J        | Nov        | Ma       |
| 18   |          |            |            | 120   | umber      |            |          |            |          |
| Abnormal                                   |          |            | 9          | (B/H) 10.00 (B/H) |            |            |          |            |          |
| Abnormal                                   |          |            |            | 6.0   |            |            |          |            |          |
| 12   |          |            |            | 2.0   |            |            |          |            |          |
| Nov28/16                                   | Jan4/21  | Nov15/22 - | Mar31/24 - | Nov28/16  | Nov20/17 - | Dec11/19   | Jan4/21  | Nov15/22 - | Mar31/24 |
| No. No.                                    | ,        | No         | M          | N   | Š          | De         | 7        | S          | Ma       |

: 01 Apr 2024

: 02 Apr 2024





Laboratory Sample No.

Lab Number : 06134602

Unique Number : 10954067

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC0878302 Received **Tested** : 02 Apr 2024 - Wes Davis

Diagnosed

Test Package: MOB 1 (Additional Tests: TBN) 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)

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