

## **OIL ANALYSIS REPORT**

Sample Rating Trend



# VOLVO TRACTOR 26445

Diesel Engine

PETRO CANADA DURON SHP 10W30 (36 QTS)

## DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

### 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.

| SAMPLE INFORI    | MATION    | method      | limit/base | current     | history1    | history2    |
|------------------|-----------|-------------|------------|-------------|-------------|-------------|
| Sample Number    |           | Client Info |            | PCA0112335  | PCA0096524  | PCA0061237  |
| Sample Date      |           | Client Info |            | 24 Nov 2023 | 04 Jun 2023 | 14 Dec 2021 |
| Machine Age      | mls       | Client Info |            | 197843      | 0           | 197843      |
| Oil Age          | mls       | Client Info |            | 197843      | 0           | 197843      |
| Oil Changed      |           | Client Info |            | N/A         | N/A         | Changed     |
| Sample Status    |           |             |            | NORMAL      | NORMAL      | NORMAL      |
| CONTAMINAT       | ION       | method      | limit/base | current     | history1    | history2    |
| Fuel             |           | WC Method   | >6.0       | <1.0        | <1.0        | <1.0        |
| Water            |           | WC Method   | >0.2       | NEG         | NEG         | NEG         |
| Glycol           |           | WC Method   |            | NEG         | NEG         | NEG         |
| WEAR METAL       | S         | method      | limit/base | current     | history1    | history2    |
| Iron             | ppm       | ASTM D5185m | >100       | 27          | 24          | 23          |
| Chromium         | ppm       | ASTM D5185m | >20        | <1          | <1          | <1          |
| Nickel           | ppm       | ASTM D5185m | >2         | 0           | <1          | <1          |
| Titanium         | ppm       | ASTM D5185m |            | 0           | 0           | 0           |
| Silver           | ppm       | ASTM D5185m | >2         | 0           | 0           | 0           |
| Aluminum         | ppm       | ASTM D5185m | >25        | 4           | 2           | 0           |
| Lead             | ppm       | ASTM D5185m | >40        | 2           | <1          | 2           |
| Copper           | ppm       | ASTM D5185m | >330       | 5           | 3           | 3           |
| Tin              | ppm       | ASTM D5185m | >15        | <1          | <1          | <1          |
| Antimony         | ppm       | ASTM D5185m |            |             |             | 0           |
| Vanadium         | ppm       | ASTM D5185m |            | 0           | 0           | 0           |
| Cadmium          | ppm       | ASTM D5185m |            | 0           | 0           | 0           |
| ADDITIVES        |           | method      | limit/base | current     | history1    | history2    |
| Boron            | ppm       | ASTM D5185m | 2          | <1          | 0           | <1          |
| Barium           | ppm       | ASTM D5185m | 0          | 0           | 0           | 0           |
| Molybdenum       | ppm       | ASTM D5185m | 50         | 60          | 69          | 63          |
| Manganese        | ppm       | ASTM D5185m | 0          | <1          | <1          | <1          |
| Magnesium        | ppm       | ASTM D5185m | 950        | 963         | 853         | 1012        |
| Calcium          | ppm       | ASTM D5185m | 1050       | 1080        | 1112        | 1151        |
| Phosphorus       | ppm       | ASTM D5185m | 995        | 1026        | 959         | 1059        |
| Zinc             | ppm       | ASTM D5185m | 1180       | 1309        | 1162        | 1209        |
| Sulfur           | ppm       | ASTM D5185m | 2600       | 2535        | 3030        | 2143        |
| CONTAMINAN       | TS        | method      | limit/base | current     | history1    | history2    |
| Silicon          | ppm       | ASTM D5185m | >25        | 8           | 4           | <1          |
| Sodium           | ppm       | ASTM D5185m |            | 12          | 8           | 14          |
| Potassium        | ppm       | ASTM D5185m | >20        | 1           | 4           | <1          |
| INFRA-RED        |           | method      | limit/base | current     | history1    | history2    |
| Soot %           | %         | *ASTM D7844 | >3         | 0.9         | 0.9         | 0.1         |
| Nitration        | Abs/cm    | *ASTM D7624 | >20        | 10.9        | 11.1        | 10.2        |
| Sulfation        | Abs/.1mm  | *ASTM D7415 | >30        | 23.4        | 22.8        | 25.1        |
| FLUID DEGRA      | DATION    | method      | limit/base | current     | history1    | history2    |
| Ovidation        | Ales/dame |             | 05         |             | 10.0        | 00.0        |
| Oxidation        | Abs/.1mm  | *ASTM D7414 | >25        | 21.1        | 18.6        | 22.6        |
| Base Number (BN) | mg KOH/g  |             | >25        | 21.1<br>3.6 | 5.7         | 7           |



Abnorma

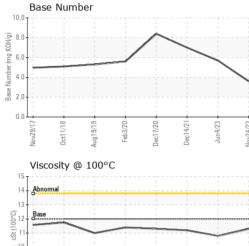
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# **OIL ANALYSIS REPORT**

VISUAL



Report Id: PERDILSC [WUSCAR] 06032166 (Generated: 12/19/2023 15:07:21) Rev: 1

Aug19/19

|          |                                 | VISUA  |                                       |   | method              | limit/bas      | se current   | history1              | history2            |  |
|----------|---------------------------------|--|---------------------------------------|---|---------------------|----------------|--|-----------------------|---------------------|--|
| ~        |                                 | White Me   | etal                                  | scalar  | *Visual             | NONE           | NONE   | NONE                  | NONE                |  |
|          |                                 | Yellow M   | etal                                  | scalar  | *Visual             | NONE           | NONE   | NONE                  | NONE                |  |
|          |                                 | Precipitat   | te                                    | scalar  | *Visual             | NONE           | NONE   | NONE                  | NONE                |  |
|          |                                 | Silt   |                                       | scalar  | *Visual             | NONE           | NONE   | NONE                  | NONE                |  |
|          |                                 | Debris   |                                       | scalar  | *Visual             | NONE           | NONE   | NONE                  | NONE                |  |
|          |                                 | Sand/Dirt  | t                                     | scalar  | *Visual             | NONE           | NONE   | NONE                  | NONE                |  |
| //20 -   | 4/21                            |  |                                       | scalar  | *Visual             | NORML          | NORML  | NORML                 | NORML               |  |
| Dec17/20 | Dec14/21<br>Jun4/23<br>Nov24/23 | Odor   |                                       | scalar  | *Visual             | NORML          | NORML  | NORML                 | NORML               |  |
|          |                                 | Emulsifie  | d Water                               | scalar  | *Visual             | >0.2           | NEG  | NEG                   | NEG                 |  |
|          |                                 | Free Wat   |                                       | scalar  | *Visual             | 20.L           | NEG  | NEG                   | NEG                 |  |
|          |                                 |  |                                       |   |                     |                |  |                       |                     |  |
|          |                                 |  |                                       |   | method              | limit/bas      |  | history1              | history2            |  |
|          |                                 | Visc @ 1<br>GRAP   |                                       | cSt   | ASTM D445           | 12.00          | 11.3   | 10.8                  | 11.2                |  |
|          |                                 | Ferrous  |                                       |   |                     |                |  |                       |                     |  |
|          |                                 | <sup>40</sup> T  |                                       |   |                     |                |  |                       |                     |  |
| 7/20     | Dec14/21 -<br>Jun4/23 -         |  | iron<br>chromium                      |   |                     |                |  |                       |                     |  |
| Dec17/20 | Dec14/21<br>Jun4/23             |  | nickel                                |   |                     |                |  |                       |                     |  |
|          |                                 | 25 -   |                                       |   | $\smile$            |                |  |                       |                     |  |
|          |                                 | 튭 20 -   |                                       |   |                     |                |  |                       |                     |  |
|          |                                 | 15-  |                                       |   |                     |                |  |                       |                     |  |
|          |                                 | 10   |                                       |   |                     |                |  |                       |                     |  |
|          |                                 | 5-   |                                       |   |                     |                |  |                       |                     |  |
|          |                                 | 0 L <del>ju sou j</del> u<br>2 2   | <u>p</u>                              | 20 +-   | 21-22               | 53             |  |                       |                     |  |
|          |                                 | Nov29/17<br>Oct11/18   | Aug 19/19                             | Feb3/20<br>Dec17/20   | Dec14/21<br>Jun4/23 | Nov24/23       |  |                       |                     |  |
|          |                                 | -  |                                       |   |                     | Nc             |  |                       |                     |  |
|          |                                 | Non-fer  | rous Metal                            | IS  |                     |                |  |                       |                     |  |
|          |                                 |  | copper                                |   |                     |                |  |                       |                     |  |
|          |                                 | 20   | tin                                   |   |                     |                |  |                       |                     |  |
|          |                                 | 20   |                                       |   |                     |                |  |                       |                     |  |
|          |                                 | <u>ة</u> 15  | · · · · · · · · · · · · · · · · · · · |   |                     |                |  |                       |                     |  |
|          |                                 | 10   |                                       |   |                     |                |  |                       |                     |  |
|          |                                 | and a state of the | 11                                    |   |                     |                |  |                       |                     |  |
|          |                                 | 5  |                                       | a base of a distant of the local  |                     | -              |  |                       |                     |  |
|          |                                 | 0  |                                       |   |                     | AND ADDRESS OF |  |                       |                     |  |
|          |                                 | Nov29/17<br>Oct11/18   | Aug19/19                              | Feb3/20<br>Dec17/20   | Dec14/21<br>Jun4/23 | Nov24/23       |  |                       |                     |  |
|          |                                 | Nov  | Aug                                   | Dec.  | Dec                 | Nov            |  |                       |                     |  |
|          |                                 |  | y @ 100°C                             |   |                     |                | Base Number  |                       |                     |  |
|          |                                 | 15 T   |                                       |   |                     |                | 9.0 T  |                       |                     |  |
|          |                                 | 14 - Abnormal  |                                       |   |                     |                | 8.0  |                       |                     |  |
|          |                                 | 13   |                                       |   |                     |                | ⊜7.0-<br>¥   | /                     |                     |  |
|          |                                 | Dig 12 Base  |                                       |   |                     | S              | 07.0<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>1 | _                     |                     |  |
|          |                                 | 0012 Base  |                                       |   |                     |                | 5.0  |                       |                     |  |
|          |                                 | - i i  |                                       |   | $\sim$              |                | En 7.0   |                       |                     |  |
|          |                                 | 10 - Abnormal  |                                       |   |                     |                | a 2.0  |                       |                     |  |
|          |                                 | 9  |                                       |   |                     |                | 1.0  |                       |                     |  |
|          |                                 | 84   | 5                                     |   |                     |                | 0.0  |                       |                     |  |
|          |                                 | Nov29/17<br>Oct11/18   | Aug19/19 .                            | Feb3/20<br>Dec17/20   | Dec14/21<br>Jun4/23 | Nov24/23       | Nov29/17<br>0ct11/18 -<br>Aug19/19 -                       | Feb3/20<br>Dec17/20   | Dec14/21<br>Jun4/23 |  |
|          |                                 | Nov  | Aug                                   | Pec Fe  | Der<br>Jui          | Nov            | Nov<br>Oct   | Dec                   | Ju                  |  |
|          | 1.4                             |  |                                       |   |                     |                | 540  |                       |                     |  |
|          | Laboratory                      | : WearChe<br>: PCA0112   |                                       | 501 Madison Ave., Cary, NC 27513<br><b>Recieved</b> : 12 Dec 2023<br><b>Diagnosed</b> : 13 Dec 2023 |                     |                | 513  | 2047 HWY 9 WES        |                     |  |
| AB       | Sample No.<br>Lab Number        |  |                                       |   |                     |                |  | 204                   | DILLON, S           |  |
| ORATORY  | Unique Number                   | 5  |                                       |   |                     |                |  |                       | US 295              |  |
|          | Test Package                    |  |                                       |   |                     |                |  | Contact:              | KEVIN HOOP          |  |
| e L2367  | Test Fackage                    | <b>je</b> : FLEET<br>t, contact Customer Service at 1-800-237-1369.  |                                       |   |                     |                |  | kevin.hooks@perdue.co |                     |  |
|          |                                 | contact Cus  |                                       |   |                     |                |  | kevin.hool            | ks@perdue.co        |  |