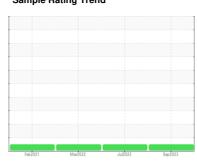


# **OIL ANALYSIS REPORT**

Sample Rating Trend



NORMAL



# FORD 514

Component **Diesel Engine** 

PETRO CANADA DURON XL SYN BLEND 15W40 (--- GAL)

## 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

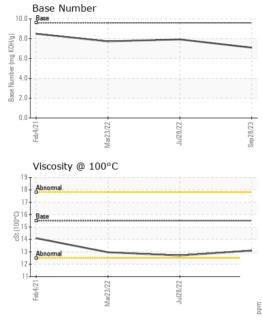
## **Fluid Condition**

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

| 15W40 ( GAL)     |          | Feb 202     | 1 Mar2022  | Jul2022 Se  | p2023       |             |
|------------------|----------|-------------|------------|-------------|-------------|-------------|
| SAMPLE INFOR     | MATION   | method      | limit/base | current     | history1    | history2    |
| Sample Number    |          | Client Info |            | PCA0105057  | PCA0054211  | PCA0054259  |
| Sample Date      |          | Client Info |            | 28 Sep 2023 | 28 Jul 2022 | 23 Mar 2022 |
| Machine Age      | mls      | Client Info |            | 89117       | 45045       | 33596       |
| Oil Age          | mls      | Client Info |            | 7500        | 7500        | 7500        |
| Oil Changed      |          | Client Info |            | Changed     | Changed     | Changed     |
| Sample Status    |          |             |            | NORMAL      | NORMAL      | NORMAL      |
| CONTAMINAT       | ION      | method      | limit/base | current     | history1    | history2    |
| Fuel             |          | WC Method   | >5         | <1.0        | <1.0        | <1.0        |
| Glycol           |          | WC Method   |            | NEG         | NEG         | NEG         |
| WEAR METAL       | .S       | method      | limit/base | current     | history1    | history2    |
| Iron             | ppm      | ASTM D5185m | >100       | 12          | 44          | 53          |
| Chromium         | ppm      | ASTM D5185m | >20        | 0           | <1          | 1           |
| Nickel           | ppm      | ASTM D5185m | >4         | 0           | <1          | 0           |
| Titanium         | ppm      | ASTM D5185m |            | 0           | 0           | <1          |
| Silver           | ppm      | ASTM D5185m | >3         | 0           | <1          | 0           |
| Aluminum         | ppm      | ASTM D5185m | >20        | 2           | 7           | 14          |
| Lead             | ppm      | ASTM D5185m | >40        | 0           | <1          | 0           |
| Copper           | ppm      |             | >330       | 0           | 2           | 2           |
| Tin              | ppm      | ASTM D5185m | >15        | <1          | <1          | 0           |
| Antimony         | ppm      | ASTM D5185m | >10        |             |             |             |
| Vanadium         |          | ASTM D5185m |            | 0           | 0           | 0           |
|                  | ppm      |             |            | 0           | 0           | 0           |
| Cadmium          | ppm      | ASTM D5185m | 12 - 24 // |             |             | -           |
| ADDITIVES        |          | method      | limit/base | current     | history1    | history2    |
| Boron            | ppm      | ASTM D5185m | 1          | 2           | 6           | 7           |
| Barium           | ppm      | ASTM D5185m | 1          | 0           | 0           | 0           |
| Molybdenum       | ppm      | ASTM D5185m | 60         | 57          | 54          | 57          |
| Manganese        | ppm      | ASTM D5185m | 1          | 0           | <1          | 1           |
| Magnesium        | ppm      | ASTM D5185m | 1010       | 893         | 816         | 962         |
| Calcium          | ppm      | ASTM D5185m | 1070       | 1096        | 1083        | 1098        |
| Phosphorus       | ppm      | ASTM D5185m | 1150       | 963         | 844         | 998         |
| Zinc             | ppm      | ASTM D5185m | 1270       | 1178        | 1096        | 1289        |
| Sulfur           | ppm      | ASTM D5185m | 2060       | 2972        | 2535        | 2554        |
| CONTAMINAN       | ITS      | method      | limit/base | current     | history1    | history2    |
| Silicon          | ppm      | ASTM D5185m | >25        | 21          | 16          | 19          |
| Sodium           | ppm      | ASTM D5185m |            | 3           | 5           | 5           |
| Potassium        | ppm      | ASTM D5185m | >20        | 1           | 0           | 1           |
| INFRA-RED        |          | method      | limit/base | current     | history1    | history2    |
| Soot %           | %        | *ASTM D7844 | >3         | 0.1         | 0.3         | 0.3         |
| Nitration        | Abs/cm   | *ASTM D7624 | >20        | 6.3         | 10.7        | 9.2         |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30        | 20.4        | 25.8        | 22.9        |
| FLUID DEGRA      | OATION   | method      | limit/base | current     | history1    | history2    |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25        | 19.4        | 27.9        | 24.5        |
| Base Number (BN) | mg KOH/g | ASTM D2896  |            | 7.1         | 7.93        | 7.73        |
| (= · •)          | 39       |             |            |             |             |             |



# **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 PROPE             | RTIES  | method  | limit/base | current | history1 | history2 |

| ١                     | /isc @ 100°C            | cSt AS     | TM D445 | 15.5     | 13.1               | 12.7       | 12.96      |
|-----------------------|-------------------------|------------|---------|----------|--------------------|------------|------------|
|                       | GRAPHS                  |            |         |          |                    |            |            |
| 250                   | Iron (ppm)              |            |         |          | Lead (ppn          | n)         |            |
| 200                   | Severe                  |            |         |          | Severe Severe      |            |            |
| 150<br>100            |                         |            |         |          | Abnormal           |            |            |
|                       | Abnormal                |            |         |          | 40 7               |            |            |
| 50                    |                         |            | _       |          | 20                 |            |            |
|                       | Feb 4/21                | Jul28/22 - |         | Sep28/23 | Feb4/21-           | Mar23/22 • | Jul28/22 - |
|                       | _                       | ٦          |         | Sep      |                    | _          | lul.       |
| 50                    | Aluminum (ppm)          |            |         |          | Chromium<br>50 T 3 | n (ppm)    |            |
| 40                    | Severe                  |            |         |          | 40 Severe          |            |            |
| 됩 <sup>30</sup><br>20 | Abnormal                |            |         |          | 20 Abnormal        |            |            |
| 10                    |                         |            |         |          | 10                 |            |            |
| 0                     | 7                       |            |         | 3        | 0                  |            | 2          |
|                       | Feb4/21                 | Jul28/22   |         | Sep28/23 | Feb 4/21           | Mar23/22   | Jul28/22   |
|                       | <pre>Copper (ppm)</pre> | ,          |         | S        | Silicon (pp        |            | -,         |
| 400                   | Severe Patriorinal      |            |         |          | 80 Severe          |            |            |
| 300                   |                         |            |         |          | 60                 |            |            |
| 트 200<br>금            |                         |            |         |          | Abnormal           |            |            |
| 100                   |                         |            |         |          | 20-                |            |            |
| 0                     |                         | 72         |         | /23      | 0 12/              |            | 72 23      |
|                       | Feb4/21                 | Jul28/22   |         | Sep28/23 | Feb4/21            | Mar23/22   | Jul28/22 - |

Base Number

10.0<sub>T</sub> (mg KOH/g)

Base Number 4.0

0.0





Laboratory Sample No.

Lab Number

Unique Number : 10676096

10

: PCA0105057 : 05969545

Viscosity @ 100°C

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received Diagnosed

: 04 Oct 2023 : 05 Oct 2023

Diagnostician : Wes Davis

Jul28/22

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) **B & B HARVESTING** 

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Contact/Location: Service Manager - BBHMOD