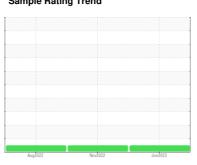


# **OIL ANALYSIS REPORT**

Sample Rating Trend



NORMAL



Machine Id **639266** 

Component **Diesel Engine** 

PETRO CANADA DURON SHP 10W30 (--- QTS)

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

Metal levels are typical for a new component breaking in.

### Contamination

There is no indication of any contamination in the

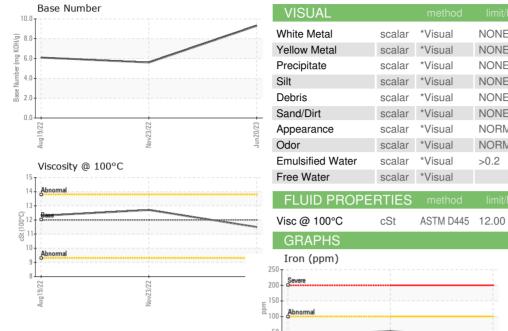
### **Fluid Condition**

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

| QTS)  |          |             |            |             |             |             |  |  |  |
|---|----------|-------------|------------|-------------|-------------|-------------|--|--|--|
| SAMPLE INFOR  | MATION   | method      | limit/base | current     | history 1   | history 2   |  |  |  |
| Sample Number   |          | Client Info |            | PCA0098022  | PCA0083538  | PCA0079020  |  |  |  |
| Sample Date   |          | Client Info |            | 20 Jun 2023 | 23 Nov 2022 | 19 Aug 2022 |  |  |  |
| Machine Age   | mls      | Client Info |            | 30894       | 27400       | 20451       |  |  |  |
| Oil Age   | mls      | Client Info |            | 0           | 0           | 0           |  |  |  |
| Oil Changed   |          | Client Info |            | Changed     | Changed     | Not Changd  |  |  |  |
| Sample Status   |          |             |            | NORMAL      | NORMAL      | NORMAL      |  |  |  |
| CONTAMINAT  | ION      | method      | limit/base | current     | history 1   | history 2   |  |  |  |
| Fuel  |          | WC Method   | >5         | <1.0        | <1.0        | <1.0        |  |  |  |
| Glycol  |          | WC Method   |            | NEG         | NEG         | NEG         |  |  |  |
| WEAR METAL  | S        | method      | limit/base | current     | history 1   | history 2   |  |  |  |
| Iron  | ppm      | ASTM D5185m | >100       | 26          | 53          | 35          |  |  |  |
| Chromium  | ppm      | ASTM D5185m | >20        | <1          | <1          | <1          |  |  |  |
| Nickel  | ppm      | ASTM D5185m | >4         | <1          | 0           | <1          |  |  |  |
| Titanium  | ppm      | ASTM D5185m |            | 0           | <1          | <1          |  |  |  |
| Silver  | ppm      | ASTM D5185m | >3         | 0           | <1          | <1          |  |  |  |
| Aluminum  | ppm      | ASTM D5185m | >20        | 6           | 21          | 18          |  |  |  |
| Lead  | ppm      | ASTM D5185m | >40        | 0           | <1          | <1          |  |  |  |
| Copper  | ppm      | ASTM D5185m | >330       | 3           | 12          | 11          |  |  |  |
| Tin   | ppm      | ASTM D5185m | >15        | <1          | 2           | 2           |  |  |  |
| Vanadium  | ppm      | ASTM D5185m |            | 0           | 0           | 0           |  |  |  |
| Cadmium   | ppm      | ASTM D5185m |            | 0           | 0           | 0           |  |  |  |
| ADDITIVES   |          | method      | limit/base | current     | history 1   | history 2   |  |  |  |
| Boron   | ppm      | ASTM D5185m | 2          | 17          | 11          | 28          |  |  |  |
| Barium  | ppm      | ASTM D5185m | 0          | 0           | 0           | 1           |  |  |  |
| Molybdenum  | ppm      | ASTM D5185m | 50         | 58          | 24          | 16          |  |  |  |
| Manganese   | ppm      | ASTM D5185m | 0          | <1          | 2           | 2           |  |  |  |
| Magnesium   | ppm      | ASTM D5185m | 950        | 802         | 595         | 598         |  |  |  |
| Calcium   | ppm      | ASTM D5185m | 1050       | 1191        | 1651        | 1398        |  |  |  |
| Phosphorus  | ppm      | ASTM D5185m | 995        | 973         | 823         | 712         |  |  |  |
| Zinc  | ppm      | ASTM D5185m | 1180       | 1143        | 1000        | 865         |  |  |  |
| Sulfur  | ppm      | ASTM D5185m | 2600       | 3171        | 3828        | 2856        |  |  |  |
| CONTAMINAN  | ITS      | method      | limit/base | current     | history 1   | history 2   |  |  |  |
| Silicon   | ppm      | ASTM D5185m | >25        | 7           | 9           | 10          |  |  |  |
| Sodium  | ppm      | ASTM D5185m |            | 1           | 4           | 4           |  |  |  |
| Potassium   | ppm      | ASTM D5185m | >20        | 15          | 54          | 55          |  |  |  |
| INFRA-RED   |          | method      | limit/base | current     | history 1   | history 2   |  |  |  |
| Soot %  | %        | *ASTM D7844 | >3         | 0.2         | 0.5         | 0.3         |  |  |  |
| Nitration   | Abs/cm   | *ASTM D7624 | >20        | 8.1         | 13.0        | 11.8        |  |  |  |
| Sulfation   | Abs/.1mm | *ASTM D7415 | >30        | 19.2        | 28.4        | 25.3        |  |  |  |
| FLUID DEGRADATION method limit/base current history 1 history 2 |          |             |            |             |             |             |  |  |  |
| Oxidation   | Abs/.1mm | *ASTM D7414 | >25        | 15.1        | 24.1        | 21.0        |  |  |  |
| Base Number (BN)  | mg KOH/g | ASTM D2896  |            | 9.3         | 5.6         | 6.1         |  |  |  |
|   |          |             |            |             |             |             |  |  |  |



## **OIL ANALYSIS REPORT**



| 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     |
| Emulsified Water  | scalar    | *Visual   | >0.2  | NEG           | NEG        | NEG       |
| Free Water        | scalar    | *Visual   |   | NEG           | NEG        | NEG       |
| FLUID PROPE       | RTIES     | method    | limit/base  | current       | history 1  | history 2 |
| Visc @ 100°C      | cSt       | ASTM D445 | 12.00   | 11.5          | 12.7       | 12.3      |
| GRAPHS            |           |           |   |               |            |           |
| Iron (ppm)        |           |           | 10  | Lead (ppm)    |            |           |
| Severe            |           |           | 8   | Severe        |            |           |
|                   |           |           | 6   |               |            |           |
| Abnormal          |           |           | Ed 4  | Abnormal      |            |           |
|                   | _         |           | 2   |               |            |           |
| 7                 | 2         |           |   |               |            |           |
| Aug19/22          | Nov23/22  |           | Jun20/23  | Aug19/22      | Nov23/22   |           |
|                   | N         |           | n C   |               |            |           |
| Aluminum (ppm)    |           |           | 5   | Chromium (p   | opm)<br>   |           |
| Severe            |           |           |   | Severe        |            |           |
| 4                 |           |           | E3  | D             |            |           |
| Abnormal          |           |           | E 2   | Abnormal      |            |           |
| +                 |           |           | 1   | ·             |            |           |
| 2                 | 2         |           |   | 2             | 2          |           |
| Aug 19/22         | Nov23/22  |           | Jun20/23  | Aug19/22.     | Nov23/22   |           |
|                   | N.        |           | 7   |               |            |           |
| Copper (ppm)      | ,         |           | 8   | Silicon (ppm) |            |           |
| Abironnal         |           |           |   |               |            |           |
|                   |           |           |   |               |            |           |
| 1                 |           |           | Ed 4  | Abnormal      |            |           |
|                   |           |           | 2   | ) +           |            |           |
|                   |           |           |   |               |            |           |
| Aug19/22          | Nov23/22  |           | Jun20/23  | Aug19/22      | Nov23/22   |           |
|                   |           |           | Jun   |               |            |           |
| Viscosity @ 100°C |           |           | 10.   | Base Number   | r<br>      |           |
|                   |           |           | 0H/d)   |               |            | -         |
| Abnormal          | nnneeeee  |           | <u> </u>  | i             |            |           |
| Bace              |           |           | 8.8 8.6 6.6 6.6 4.4 2.2 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 |               |            |           |
| Abnormal          |           |           | Juny 98 2.  |               |            |           |
|                   |           |           | - See 2.1   | 1 !           |            |           |
| Aug19/22          | Nov23/22- |           | Jun20/23  | Aug19/22      | Nov23/22 - |           |
|                   | -1        |           | -   |               | 2.1        |           |





Laboratory Sample No. Lab Number

: 05889853 Unique Number : 10545663

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0098022 Received

: 05 Jul 2023 Diagnosed

: 05 Jul 2023 Diagnostician : Wes Davis

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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