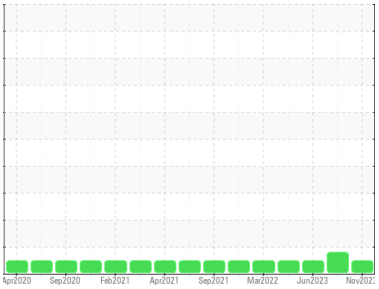
# OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
**1415**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON HP 15W40 (25 LTR)**

## 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 INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **PC0076650** | PC0032179 | PC0031583 |
| Sample Date | | Client Info | | **24 Nov 2023** | 20 Sep 2023 | 15 Jun 2023 |
| Machine Age | kms | Client Info | | **624710** | 611754 | 596173 |
| Oil Age | kms | Client Info | | **12956** | 15581 | 12538 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | MARGINAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >5 | **<1.0** | ▲ 2.3 | <1.0 |
| Water | | WC Method | >0.2 | **NEG** | NEG | NEG |
| Glycol | | WC Method | | **NEG** | NEG | 0.0 |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185(m) | >100 | **14** | 19 | 13 |
| Chromium | ppm | ASTM D5185(m) | >20 | **<1** | <1 | <1 |
| Nickel | ppm | ASTM D5185(m) | >4 | **<1** | <1 | <1 |
| Titanium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | >3 | **<1** | <1 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >20 | **2** | 3 | 2 |
| Lead | ppm | ASTM D5185(m) | >40 | **<1** | 1 | 0 |
| Copper | ppm | ASTM D5185(m) | >330 | **3** | 4 | 2 |
| Tin | ppm | ASTM D5185(m) | >15 | **0** | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Vanadium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Beryllium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |

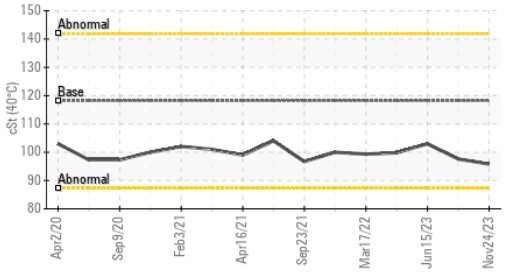
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | 0 | **6** | 16 | 77 |
| Barium | ppm | ASTM D5185(m) | 0 | **<1** | <1 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 60 | **62** | 49 | 11 |
| Manganese | ppm | ASTM D5185(m) | 0 | **0** | 0 | <1 |
| Magnesium | ppm | ASTM D5185(m) | 1010 | **991** | 732 | 129 |
| Calcium | ppm | ASTM D5185(m) | 1070 | **1255** | 1618 | 2245 |
| Phosphorus | ppm | ASTM D5185(m) | 1150 | **1078** | 1084 | 1083 |
| Zinc | ppm | ASTM D5185(m) | 1270 | **1332** | 1320 | 1251 |
| Sulfur | ppm | ASTM D5185(m) | 2060 | **2583** | 2625 | 2929 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >25 | **4** | 8 | 12 |
| Sodium | ppm | ASTM D5185(m) | | **14** | 31 | 65 |
| Potassium | ppm | ASTM D5185(m) | >20 | **<1** | 3 | 7 |

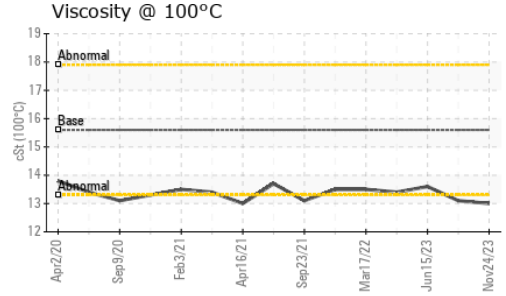
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | ASTM D7844* | >3 | **0.3** | 0.5 | 0.3 |
| Nitration | Abs/cm | ASTM D7624* | >20 | **9.3** | 10.4 | 9.4 |
| Sulfation | Abs/.1mm | ASTM D7415* | >30 | **21.4** | 23.7 | 23.5 |

# OIL ANALYSIS REPORT

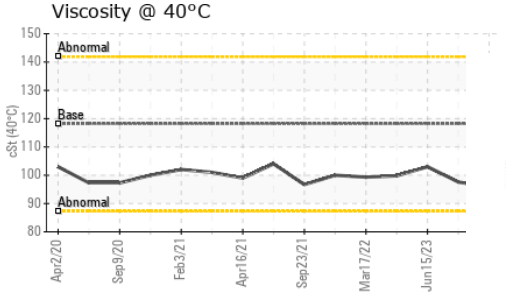
Viscosity @ 40°C




Viscosity @ 100°C




Viscosity @ 40°C



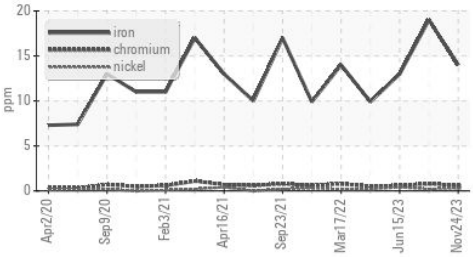

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | ASTM D7414* | >25 | **17.7** | 19.5 | 19.0 |
| Base Number (BN) | mg KOH/g | ASTM D2896* | 9.8 | **9.88** | --- | --- |

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | Visual* | NONE | **NONE** | --- | --- |
| Yellow Metal | scalar | Visual* | NONE | **NONE** | --- | --- |
| Precipitate | scalar | Visual* | NONE | **NONE** | --- | --- |
| Silt | scalar | Visual* | NONE | **NONE** | --- | --- |
| Debris | scalar | Visual* | NONE | **NONE** | --- | --- |
| Sand/Dirt | scalar | Visual* | NONE | **NONE** | --- | --- |
| Appearance | scalar | Visual* | 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 |

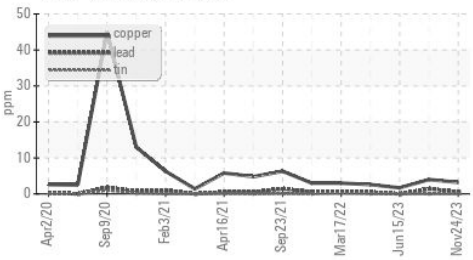
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D7279(m) | 118.2 | **95.8** | 97.6 | 103 |
| Visc @ 100°C | cSt | ASTM D7279(m) | 15.6 | **13.0** | 13.1 | 13.6 |
| Viscosity Index (VI) | Scale | ASTM D2270* | 139 | **133** | 131 | 131 |

## GRAPHS

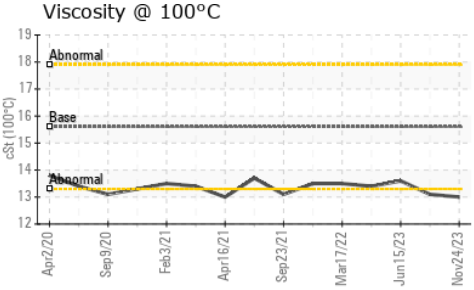
Ferrous Alloys



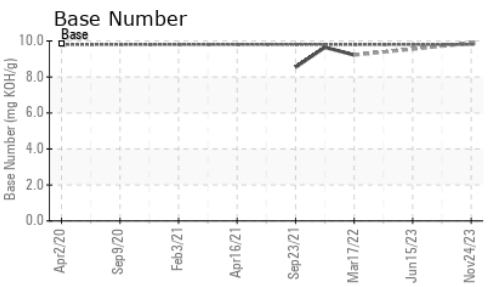

Non-ferrous Metals




Viscosity @ 100°C




Base Number




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : PC0076650 **Received** : 07 Dec 2023
**Lab Number** : 02601466 **Diagnosed** : 13 Dec 2023
**Unique Number** : 5694551 **Diagnostician** : Wes Davis
**Test Package** : IND 2 ( Additional Tests: KV40, VI )

*To discuss this sample report, contact Customer Service at 1-800-268-2131.*
*Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.*
*Validity of results and interpretation are based on the sample and information as supplied.*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