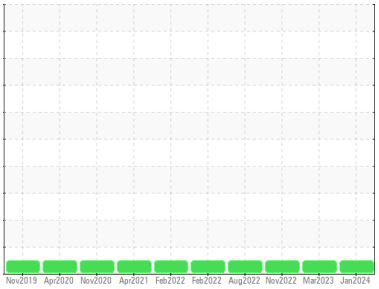
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
**CR231**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON UHP 5W40 (22 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 | | **PC0080579** | PC0072950 | PC0056623 |
| Sample Date | | Client Info | | **16 Jan 2024** | 15 Mar 2023 | 03 Nov 2022 |
| Machine Age | hrs | Client Info | | **3514** | 0 | 5355 |
| Oil Age | hrs | Client Info | | **500** | 0 | 0 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >5 | **<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 D5185(m) | >100 | **12** | 4 | 2 |
| Chromium | ppm | ASTM D5185(m) | >20 | **<1** | 0 | 0 |
| Nickel | ppm | ASTM D5185(m) | >4 | **<1** | 0 | <1 |
| Titanium | ppm | ASTM D5185(m) | | **0** | <1 | 0 |
| Silver | ppm | ASTM D5185(m) | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >20 | **2** | 4 | 2 |
| Lead | ppm | ASTM D5185(m) | >40 | **4** | <1 | <1 |
| Copper | ppm | ASTM D5185(m) | >330 | **150** | <1 | <1 |
| Tin | ppm | ASTM D5185(m) | >15 | **<1** | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) | | **0** | 0 | <1 |
| Vanadium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Beryllium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |

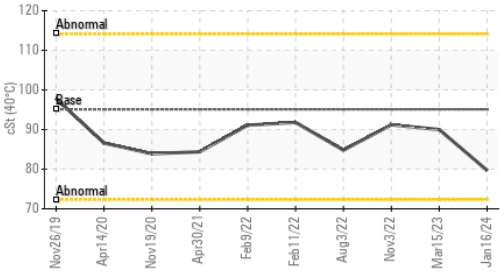
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | 65 | **43** | 53 | 52 |
| Barium | ppm | ASTM D5185(m) | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 65 | **57** | 57 | 55 |
| Manganese | ppm | ASTM D5185(m) | 0 | **0** | <1 | <1 |
| Magnesium | ppm | ASTM D5185(m) | 1160 | **1044** | 1091 | 1031 |
| Calcium | ppm | ASTM D5185(m) | 820 | **849** | 860 | 796 |
| Phosphorus | ppm | ASTM D5185(m) | 1160 | **988** | 1090 | 1008 |
| Zinc | ppm | ASTM D5185(m) | 1260 | **1151** | 1179 | 1107 |
| Sulfur | ppm | ASTM D5185(m) | 3000 | **2808** | 2898 | 2723 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >25 | **3** | 3 | 2 |
| Sodium | ppm | ASTM D5185(m) | | **4** | 4 | 4 |
| Potassium | ppm | ASTM D5185(m) | >20 | **<1** | <1 | 0 |

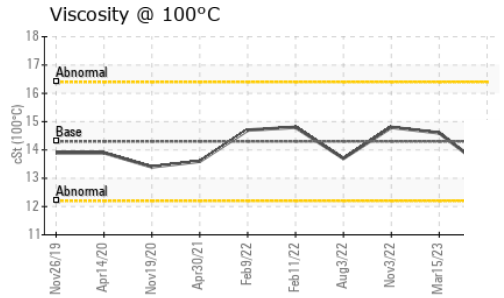
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | ASTM D7844* | >3 | **0** | 0 | 0 |
| Nitration | Abs/cm | ASTM D7624* | >20 | **8.7** | 7.8 | 7.2 |
| Sulfation | Abs/.1mm | ASTM D7415* | >30 | **20.8** | 22.4 | 21.1 |

# OIL ANALYSIS REPORT

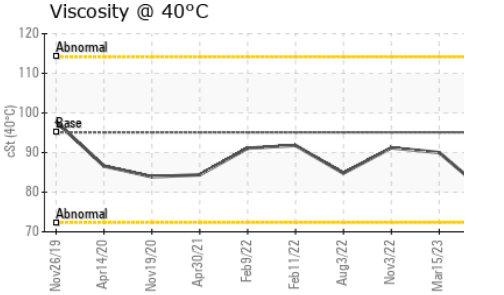
Viscosity @ 40°C




Viscosity @ 100°C




Viscosity @ 40°C



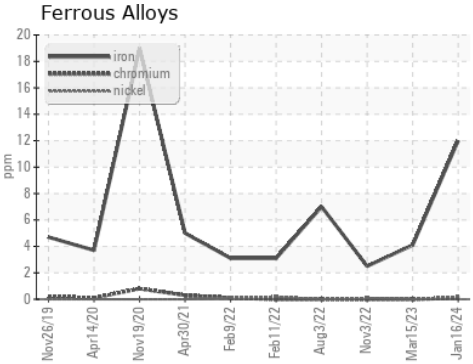

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | ASTM D7414* | >25 | **18.8** | 18.1 | 18.5 |
| Base Number (BN) | mg KOH/g | ASTM D2896* | 11.0 | **10.35** | --- | --- |

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Emulsified Water | scalar | Visual* | >0.2 | **NEG** | NEG | NEG |
| Free Water | scalar | Visual* | | **NEG** | NEG | NEG |

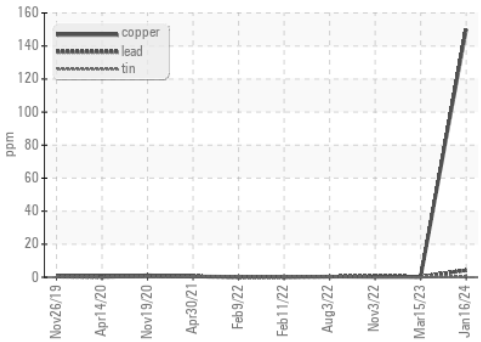
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D7279(m) | 95.1 | **79.7** | 90.0 | 91.2 |
| Visc @ 100°C | cSt | ASTM D7279(m) | 14.3 | **13.3** | 14.6 | 14.8 |
| Viscosity Index (VI) | Scale | ASTM D2270* | 169 | **169** | 169 | 170 |

## GRAPHS

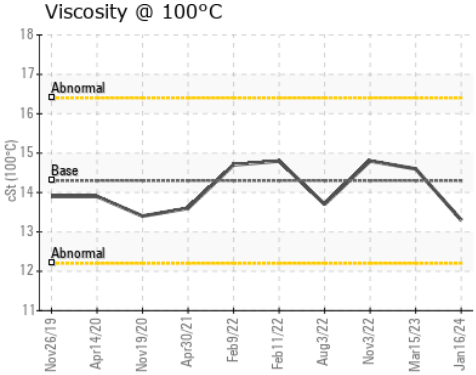
Ferrous Alloys



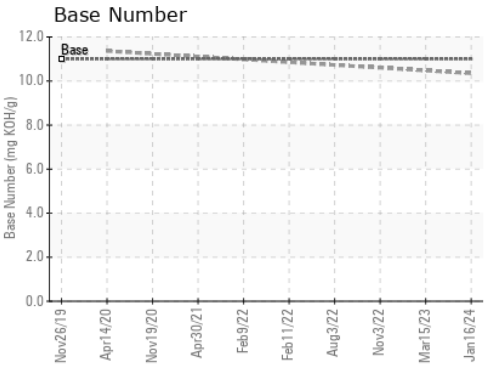

Non-ferrous Metals




Viscosity @ 100°C




Base Number




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Green Infrastructure and Partners Inc (GIPI) - 286 - Shoring & Foundations
**Sample No.** : PC0080579 **Recieved** : 26 Jan 2024
**Lab Number** : 02611448 **Diagnosed** : 29 Jan 2024
**Unique Number** : 5720543 **Diagnostician** : Wes Davis
**Test Package** : IND 2 ( Additional Tests: KV40, VI )

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Contact: Bill Acton
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F:

*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.*