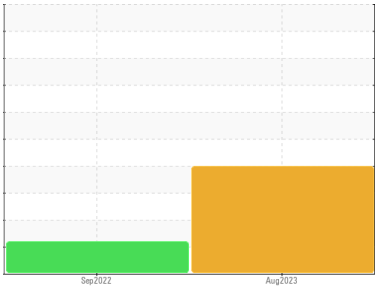
# OIL ANALYSIS REPORT

Sample Rating Trend




ISO

Machine Id
**OR872**
Component
**Hydraulic System**
Fluid
**PETRO CANADA PRODURO TO-4 SAE 10W (--- GAL)**

## DIAGNOSIS

**Recommendation**

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. The filter change at the time of sampling has been noted. Resample in 30-45 days to monitor this situation.

**Wear**

All component wear rates are normal.

**Contamination**

There is a high amount of silt (particulates < 14 microns in size) present in the oil.

**Fluid Condition**

Viscosity of sample indicates oil is within SAE 30 range, advise investigate. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0077026** | GFL0054679 | --- |
| Sample Date | | Client Info | | **10 Aug 2023** | 02 Sep 2022 | --- |
| Machine Age | hrs | Client Info | | **20882** | 19622 | --- |
| Oil Age | hrs | Client Info | | **1260** | 1500 | --- |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | --- |
| Sample Status | | | | **SEVERE** | ABNORMAL | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| PQ | | ASTM D8184* | | **7** | --- | --- |
| Iron | ppm | ASTM D5185(m) | >20 | **37** | 8 | --- |
| Chromium | ppm | ASTM D5185(m) | >10 | **<1** | <1 | --- |
| Nickel | ppm | ASTM D5185(m) | >10 | **<1** | <1 | --- |
| Titanium | ppm | ASTM D5185(m) | | **0** | <1 | --- |
| Silver | ppm | ASTM D5185(m) | | **0** | 0 | --- |
| Aluminum | ppm | ASTM D5185(m) | >10 | **2** | 2 | --- |
| Lead | ppm | ASTM D5185(m) | >10 | **<1** | 3 | --- |
| Copper | ppm | ASTM D5185(m) | >75 | **11** | 4 | --- |
| Tin | ppm | ASTM D5185(m) | >10 | **0** | 0 | --- |
| Antimony | ppm | ASTM D5185(m) | | **<1** | <1 | --- |
| Vanadium | ppm | ASTM D5185(m) | | **0** | 0 | --- |
| Beryllium | ppm | ASTM D5185(m) | | **0** | 0 | --- |
| Cadmium | ppm | ASTM D5185(m) | | **0** | <1 | --- |

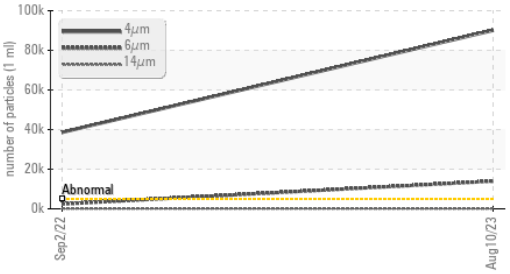
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | 1 | **2** | 3 | --- |
| Barium | ppm | ASTM D5185(m) | 0 | **0** | 0 | --- |
| Molybdenum | ppm | ASTM D5185(m) | 1 | **<1** | 1 | --- |
| Manganese | ppm | ASTM D5185(m) | 1 | **<1** | <1 | --- |
| Magnesium | ppm | ASTM D5185(m) | 1 | **10** | 17 | --- |
| Calcium | ppm | ASTM D5185(m) | 2864 | **3051** | 3542 | --- |
| Phosphorus | ppm | ASTM D5185(m) | 987 | **1067** | 956 | --- |
| Zinc | ppm | ASTM D5185(m) | 1162 | **1209** | 1071 | --- |
| Sulfur | ppm | ASTM D5185(m) | 3713 | **3605** | 3387 | --- |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | --- |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >20 | **6** | 11 | --- |
| Sodium | ppm | ASTM D5185(m) | | **1** | 2 | --- |
| Potassium | ppm | ASTM D5185(m) | >20 | **2** | 2 | --- |

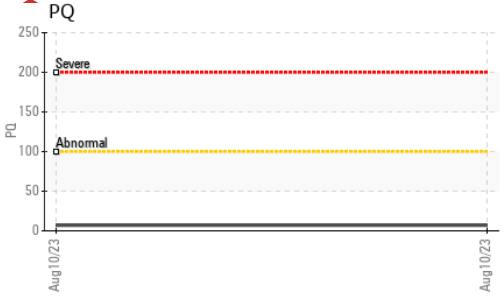
| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | **90095** | 38605 | --- |
| Particles >6µm | | ASTM D7647 | >1300 | **13960** | 2419 | --- |
| Particles >14µm | | ASTM D7647 | >160 | **132** | 151 | --- |
| Particles >21µm | | ASTM D7647 | >40 | **28** | 54 | --- |
| Particles >38µm | | ASTM D7647 | >10 | **2** | 2 | --- |
| Particles >71µm | | ASTM D7647 | >3 | **1** | 1 | --- |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | **24/21/14** | 22/18/14 | --- |

# OIL ANALYSIS REPORT

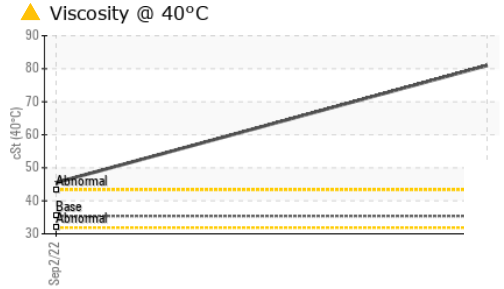
Particle Trend




PQ



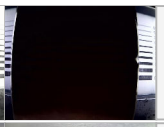

Viscosity @ 40°C




PQ

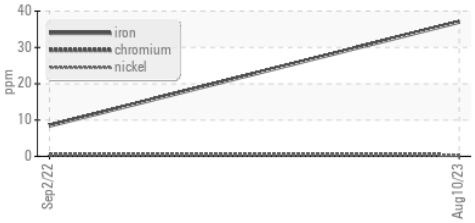

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | Visual* | NONE | **NONE** | NONE | --- |
| Yellow Metal | scalar | Visual* | NONE | **NONE** | NONE | --- |
| Precipitate | scalar | Visual* | NONE | **NONE** | NONE | --- |
| Silt | scalar | Visual* | NONE | **NONE** | NONE | --- |
| Debris | scalar | Visual* | NONE | **VLITE** | NONE | --- |
| Sand/Dirt | scalar | Visual* | NONE | **NONE** | NONE | --- |
| Appearance | scalar | Visual* | NORML | **NORML** | NORML | --- |
| Odor | scalar | Visual* | NORML | **NORML** | NORML | --- |
| Emulsified Water | scalar | Visual* | >0.1 | **NEG** | NEG | --- |
| Free Water | scalar | Visual* | | **NEG** | NEG | --- |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D7279(m) | 35.38 | ▲ **81.0** | 45.5 | --- |

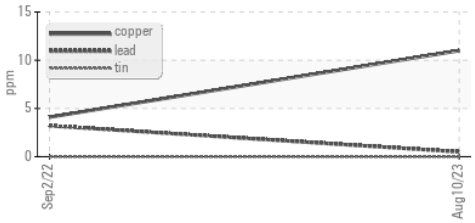
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  |  | *no image* |
| Bottom | | |  |  | *no image* |

## GRAPHS

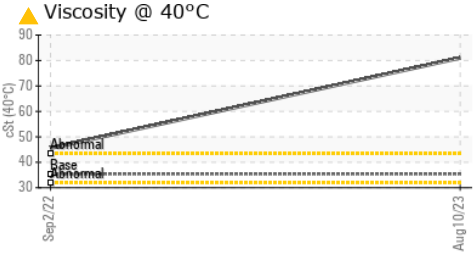
Ferrous Alloys



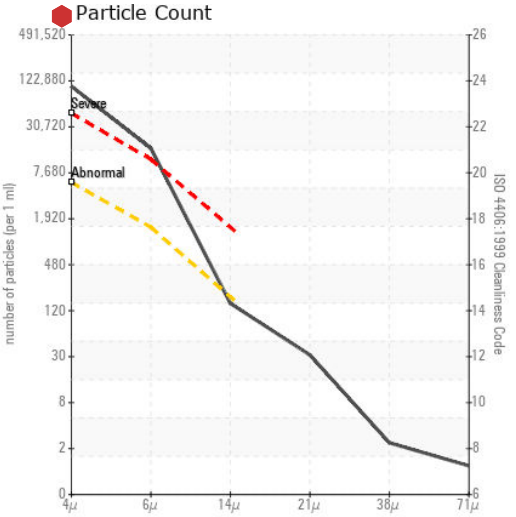

Non-ferrous Metals




Viscosity @ 40°C




Particle Count





ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **GFL Environmental - 575 - Squamish Hauling**
**Sample No.** : GFL0077026 **Received** : 15 Aug 2023 38950 Queens Way,
**Lab Number** : 02575949 **Diagnosed** : 17 Aug 2023 Squamish, BC
**Unique Number** : 5629009 **Diagnostician** : Kevin Marson CA V8B 0K8
**Test Package** : MOB 1 ( Additional Tests: PQ, PrtCount ) Contact: Dean Imbeau
dimbeau@gflenv.com
T: (604)892-5604
F: (604)892-5238


*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.*