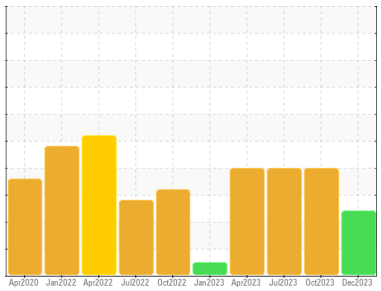
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Sample Rating Trend




ISO

Area
## INJECT B ROOM [98651036]
Machine Id
## KR-GR-003241 - INCLINE AUGER B (SOUTH) (S/N INJECT B - 11513041)
Component
**Gearbox**
Fluid
**PETRO CANADA 220 (6 QTS)**

## DIAGNOSIS

**Recommendation**

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor. ( Customer Sample Comment: 98651036 )

**Wear**

All component wear rates are normal.

**Contamination**

There is a high amount of particulates present in the oil.

**Fluid Condition**

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **PCA0111164** | PCA0104786 | PCA0099338 |
| Sample Date | | Client Info | | **26 Dec 2023** | 02 Oct 2023 | 10 Jul 2023 |
| Machine Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **Not Changd** | N/A | N/A |
| Sample Status | | | | **ABNORMAL** | ABNORMAL | SEVERE |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.2 | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >200 | **2** | ▲ 236 | 146 |
| Chromium | ppm | ASTM D5185m | >15 | **0** | 1 | <1 |
| Nickel | ppm | ASTM D5185m | >15 | **0** | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | **0** | 0 | 1 |
| Lead | ppm | ASTM D5185m | >100 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >200 | **0** | <1 | 0 |
| Tin | ppm | ASTM D5185m | >25 | **0** | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **36** | 0 | 0 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Manganese | ppm | ASTM D5185m | | **<1** | 1 | <1 |
| Magnesium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Calcium | ppm | ASTM D5185m | | **973** | 5 | 1 |
| Phosphorus | ppm | ASTM D5185m | | **320** | 350 | 242 |
| Zinc | ppm | ASTM D5185m | | **0** | 7 | 4 |
| Sulfur | ppm | ASTM D5185m | | **12201** | 3982 | 14114 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >50 | **<1** | 4 | 2 |
| Sodium | ppm | ASTM D5185m | | **10** | 2 | <1 |
| Potassium | ppm | ASTM D5185m | >20 | **2** | <1 | <1 |

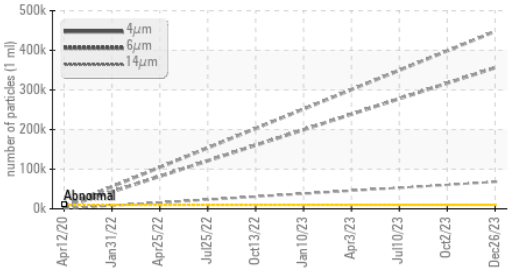
| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >10000 | ▲ **447693** | --- | --- |
| Particles >6µm | | ASTM D7647 | >2500 | ▲ **356216** | --- | --- |
| Particles >14µm | | ASTM D7647 | >640 | ▲ **67894** | --- | --- |
| Particles >21µm | | ASTM D7647 | >160 | ▲ **13802** | --- | --- |
| Particles >38µm | | ASTM D7647 | >40 | ▲ **180** | --- | --- |
| Particles >71µm | | ASTM D7647 | >10 | **1** | --- | --- |
| Oil Cleanliness | | ISO 4406 (c) | >20/18/16 | ▲ **26/26/23** | --- | --- |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | **0.57** | 0.48 | --- |

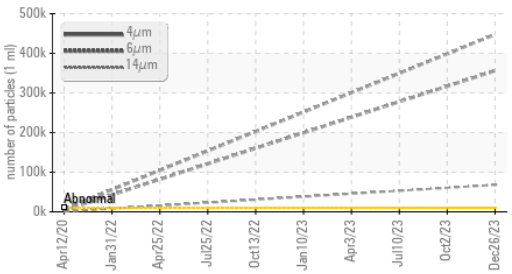
# OIL ANALYSIS REPORT

OIL DIAGNOSTICS

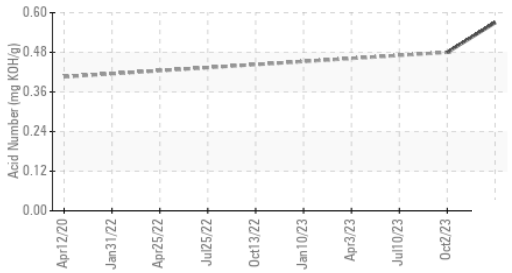
Particle Trend



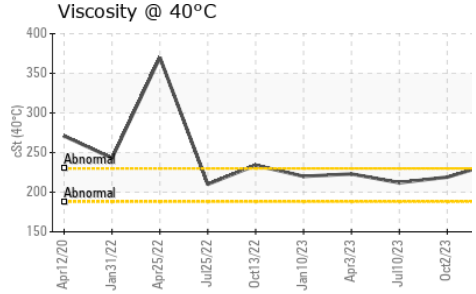

Particle Trend




Acid Number




Viscosity @ 40°C



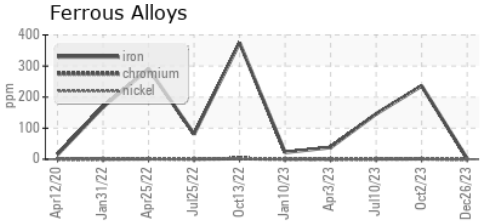

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | ▲ HEAVY | MODER |
| Debris | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Appearance | scalar | *Visual | NORML | **NORML** | ▲ MILKY | ▲ MILKY |
| Odor | scalar | *Visual | NORML | **NORML** | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.2 | **NEG** | 0.2% | ⬢ 0.2% |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | | **237** | 219 | 212 |

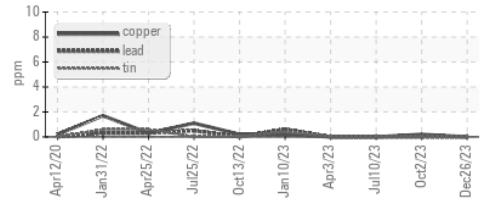
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

## GRAPHS

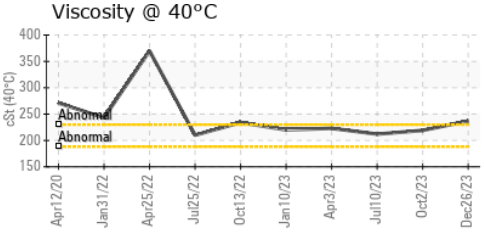
Ferrous Alloys



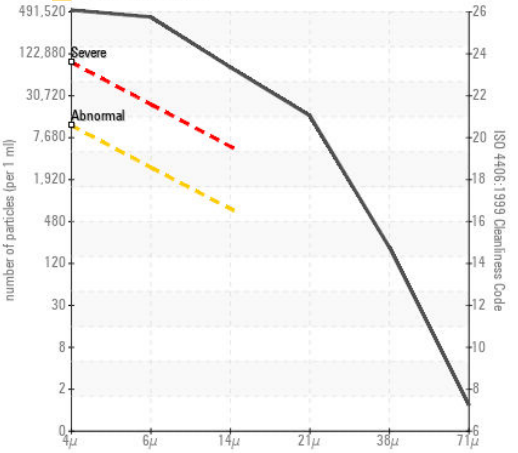

Non-ferrous Metals



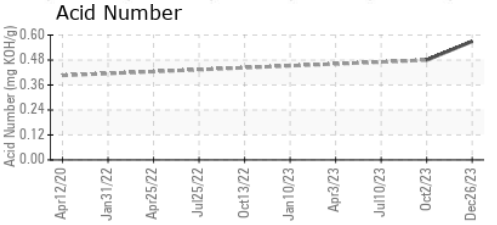

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0111164 **Recieved** : 29 Dec 2023
**Lab Number** : 06047765 **Diagnosed** : 02 Jan 2024
**Unique Number** : 10808373 **Diagnostician** : Doug Bogart
**Test Package** : IND 2 ( Additional Tests: PrtCount )

*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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Report Id: KRAKIR [WUSCAR] 06047765 (Generated: 01/02/2024 09:23:04) Rev: 1

Submitted By: Wilberto Pacheco Garcia