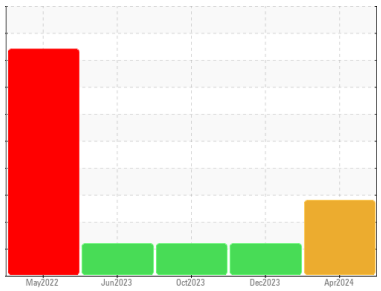
# OIL ANALYSIS REPORT

Sample Rating Trend




**WATER**

Area
**BAGLINE**
Machine Id
**KETTLE 8 - BAG**
Component
**Bottom Refrigeration Compressor**
Fluid
**PETRO CANADA PURITY FG SYNTH EP GEAR 220 (--- GAL)**

## DIAGNOSIS

**Recommendation**
We recommend you service the filters on this component. Resample at the next service interval to monitor. We were unable to perform a particle count due to a high concentration of particles present in this sample.

**Wear**
The iron level is abnormal.

**Contamination**
Moderate concentration of visible dirt/debris present in the oil. There is a trace of moisture 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 | | **USP0006484** | USP0004472 | USP0001364 |
| Sample Date | | Client Info | | **21 Apr 2024** | 17 Dec 2023 | 10 Oct 2023 |
| Machine Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **N/A** | N/A | N/A |
| Sample Status | | | | **ABNORMAL** | ABNORMAL | ABNORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >8 | ▲ **32** | 8 | 10 |
| Chromium | ppm | ASTM D5185m | >2 | **<1** | 0 | 0 |
| Nickel | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | 1 | <1 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >3 | **2** | 4 | 4 |
| Lead | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >8 | **<1** | 0 | 0 |
| Tin | ppm | ASTM D5185m | >4 | **<1** | 0 | <1 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **<1** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Barium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Manganese | ppm | ASTM D5185m | | **<1** | 0 | <1 |
| Magnesium | ppm | ASTM D5185m | | **1** | 0 | 1 |
| Calcium | ppm | ASTM D5185m | | **7** | 6 | 11 |
| Phosphorus | ppm | ASTM D5185m | | **567** | 565 | 566 |
| Zinc | ppm | ASTM D5185m | | **4** | 0 | 0 |
| Sulfur | ppm | ASTM D5185m | | **441** | 445 | 501 |

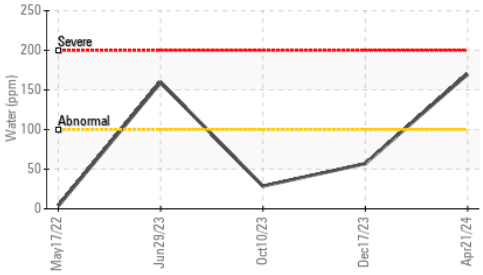
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >15 | **6** | 9 | 7 |
| Sodium | ppm | ASTM D5185m | | **2** | 3 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | **1** | 0 | 0 |
| Water | % | ASTM D6304 | >0.01 | ▲ **0.017** | 0.005 | 0.003 |
| ppm Water | ppm | ASTM D6304 | >100 | ▲ **170** | 57 | 28.7 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >10000 | --- | ▲ 78095 | ▲ 57058 |
| Particles >6µm | | ASTM D7647 | >2500 | --- | ▲ 8160 | ▲ 5312 |
| Particles >14µm | | ASTM D7647 | >640 | --- | 62 | 80 |
| Particles >21µm | | ASTM D7647 | >160 | --- | 9 | 16 |
| Particles >38µm | | ASTM D7647 | >40 | --- | 1 | 2 |
| Particles >71µm | | ASTM D7647 | >10 | --- | 0 | 1 |
| Oil Cleanliness | | ISO 4406 (c) | >20/18/16 | --- | ▲ 23/20/13 | ▲ 23/20/13 |

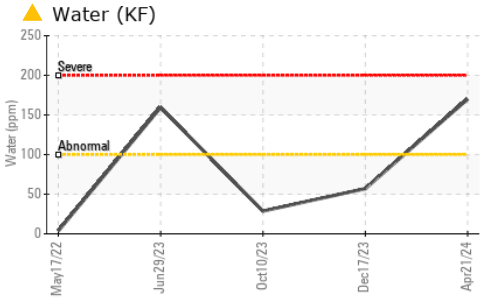
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D974 | 0.59 | **0.60** | 0.55 | 0.58 |

# OIL ANALYSIS REPORT

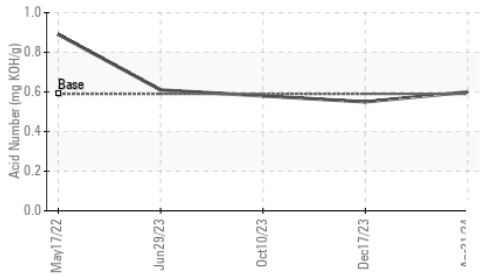
Water (KF)



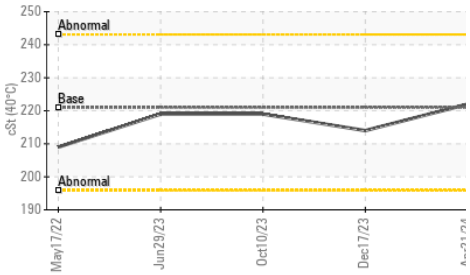

Water (KF)




Acid Number




Viscosity @ 40°C



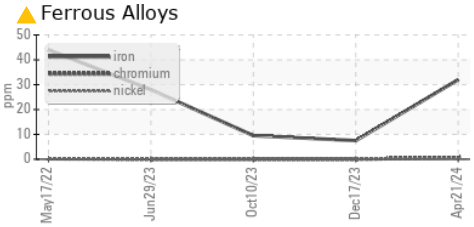

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Debris | scalar | *Visual | NONE | ▲ **MODER** | 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 | >0.01 | **0.2%** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 221 | **222** | 214 | 219 |

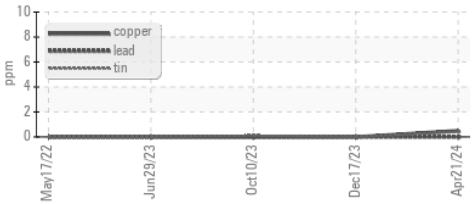
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

## GRAPHS

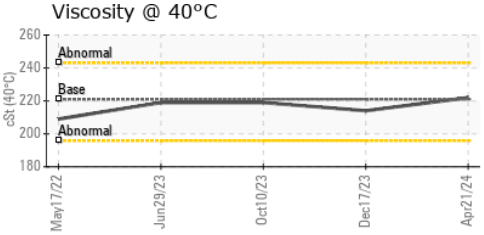
Ferrous Alloys



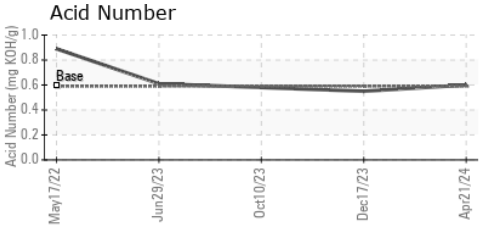

Non-ferrous Metals




Viscosity @ 40°C




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : USP0006484
**Lab Number** : 06156012
**Unique Number** : 10991435
**Test Package** : IND 2

**Received** : 22 Apr 2024
**Tested** : 24 Apr 2024
**Diagnosed** : 24 Apr 2024 - Jonathan Hester

**KraftHeinz - Cedar Rapids - Plant 8370**
4601 C ST SW
CEDAR RAPIDS, IA
US 52404
Contact: Service Manager

*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)*

T:
F: