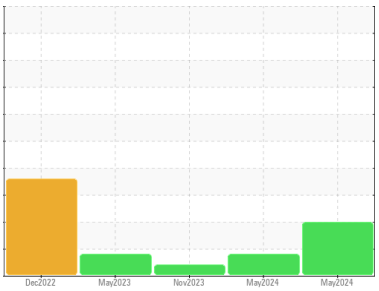
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Sample Rating Trend




ISO

Area
**BATCH SYSTEM 3**
Machine Id
**BS3 HOMO**
Component
**Gearbox**
Fluid
**PETRO CANADA ENDURATEX EP 460 (--- LTR)**

## DIAGNOSIS

**Recommendation**
We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor.

**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 | | **PCA0119929** | PCA0117327 | PCA0111052 |
| Sample Date | | Client Info | | **31 May 2024** | 20 May 2024 | 18 Nov 2023 |
| Machine Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Not Changd |
| Sample Status | | | | **ABNORMAL** | ATTENTION | ABNORMAL |

| 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 | **12** | 0 | 121 |
| Chromium | ppm | ASTM D5185m | >15 | **0** | 0 | <1 |
| Nickel | ppm | ASTM D5185m | >15 | **0** | 0 | 1 |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | <1 |
| Silver | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | **0** | 0 | 2 |
| Lead | ppm | ASTM D5185m | >100 | **0** | 0 | <1 |
| Copper | ppm | ASTM D5185m | >200 | **5** | <1 | 1 |
| Tin | ppm | ASTM D5185m | >25 | **<1** | 0 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | <1 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | <1 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 55 | **74** | 0 | 56 |
| Barium | ppm | ASTM D5185m | 0 | **<1** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 0 | **8** | <1 | 48 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | 0 | <1 |
| Magnesium | ppm | ASTM D5185m | 2 | **0** | 0 | 3 |
| Calcium | ppm | ASTM D5185m | 6 | **3** | 50 | 8 |
| Phosphorus | ppm | ASTM D5185m | 240 | **303** | 367 | 398 |
| Zinc | ppm | ASTM D5185m | 3 | **5** | 467 | 29 |
| Sulfur | ppm | ASTM D5185m | 10310 | **7739** | 1078 | 7377 |

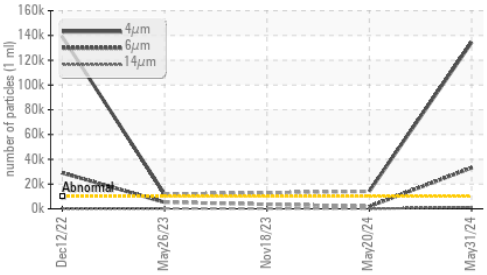
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >50 | **13** | 12 | 11 |
| Sodium | ppm | ASTM D5185m | | **0** | 2 | <1 |
| Potassium | ppm | ASTM D5185m | >20 | **<1** | <1 | 2 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >10000 | ▲ **134403** | 14100 | --- |
| Particles >6µm | | ASTM D7647 | >2500 | ▲ **33201** | 1918 | --- |
| Particles >14µm | | ASTM D7647 | >640 | ▲ **1355** | 54 | --- |
| Particles >21µm | | ASTM D7647 | >160 | ▲ **397** | 12 | --- |
| Particles >38µm | | ASTM D7647 | >40 | **29** | 0 | --- |
| Particles >71µm | | ASTM D7647 | >10 | **7** | 0 | --- |
| Oil Cleanliness | | ISO 4406 (c) | >20/18/16 | ▲ **24/22/18** | 21/18/13 | --- |

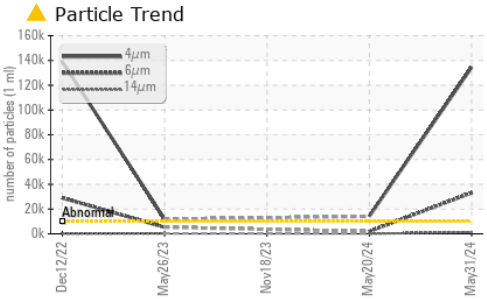
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 0.5 | **0.51** | 0.45 | 0.69 |

# OIL ANALYSIS REPORT

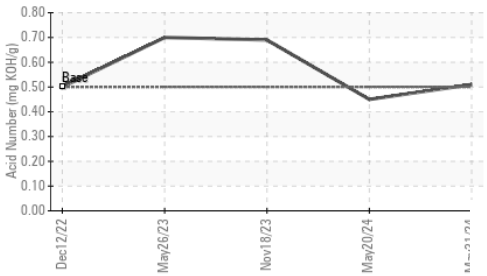
Particle Trend



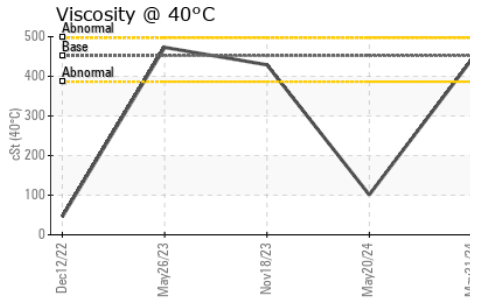

Particle Trend




Acid Number




Viscosity @ 40°C



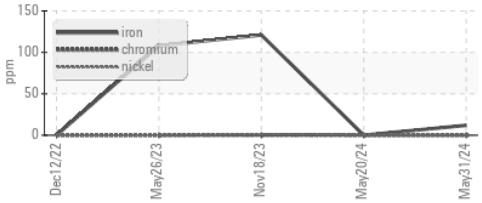

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 452 | **442** | 101 | 429 |

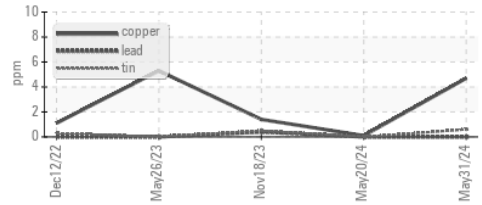
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

## GRAPHS

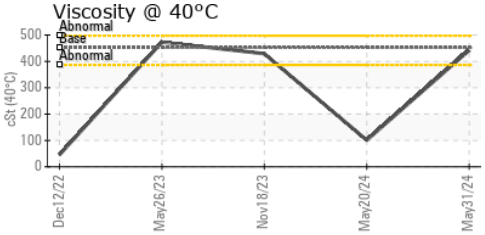
Ferrous Alloys



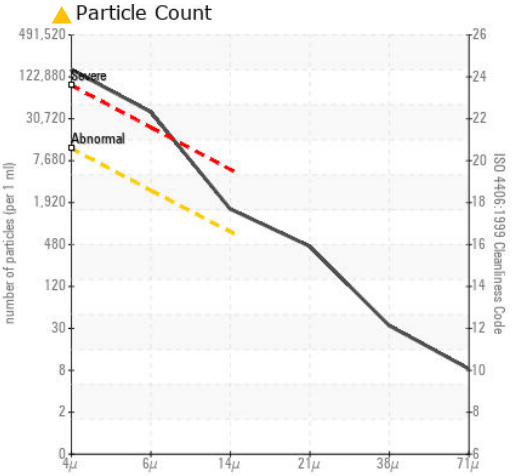

Non-ferrous Metals



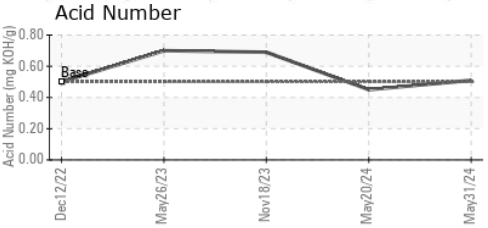

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0119929
**Lab Number** : 06200115
**Unique Number** : 11062238
**Test Package** : IND 2 ( Additional Tests: PrtCount )

**Received** : 05 Jun 2024
**Tested** : 06 Jun 2024
**Diagnosed** : 07 Jun 2024 - Don Baldridge

**KraftHeinz - Mason City - Plant 8360**
1022 12TH ST
MASON CITY, IA
US 50401
Contact: Service Manager
T:
F: (641)421-2936

*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)*