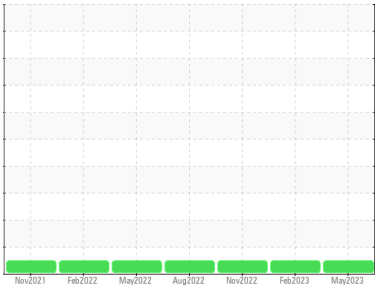
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Sample Rating Trend




**NORMAL**

Area
## Temper Mill
Machine Id
## [Temper Mill] 235020-HIGH PRESSURE HPU
Component
**Hydraulic System**
Fluid
**PETRO CANADA HYDREX AW 46 (--- GAL)**

## 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. The amount and size of particulates present in the system are acceptable.

**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 | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **PCA0095448** | PCA0089527 | PCA0081729 |
| Sample Date | | Client Info | | **01 May 2023** | 23 Feb 2023 | 22 Nov 2022 |
| 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 | | | | **NORMAL** | NORMAL | NORMAL |

| WEAR METALS | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >20 | **0** | <1 | <1 |
| Chromium | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | **<1** | 0 | 0 |
| Lead | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >20 | **2** | 2 | 2 |
| Tin | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **0** | 0 | <1 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 1 |
| Molybdenum | ppm | ASTM D5185m | 0 | **0** | <1 | <1 |
| Manganese | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185m | 0 | **7** | 6 | 5 |
| Calcium | ppm | ASTM D5185m | 50 | **57** | 65 | 65 |
| Phosphorus | ppm | ASTM D5185m | 330 | **321** | 333 | 306 |
| Zinc | ppm | ASTM D5185m | 430 | **393** | 419 | 401 |
| Sulfur | ppm | ASTM D5185m | 760 | **1411** | 1575 | 1491 |

| CONTAMINANTS | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >15 | **0** | <1 | 0 |
| Sodium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | **0** | <1 | 1 |

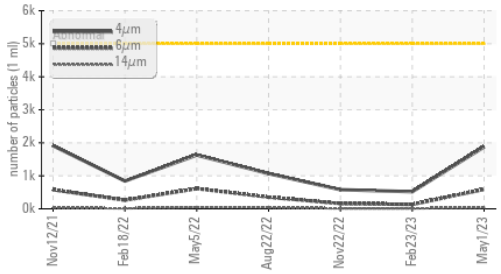
| FLUID CLEANLINESS | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | **1876** | 518 | 579 |
| Particles >6µm | | ASTM D7647 | >1300 | **591** | 133 | 158 |
| Particles >14µm | | ASTM D7647 | >160 | **37** | 11 | 11 |
| Particles >21µm | | ASTM D7647 | >40 | **10** | 4 | 2 |
| Particles >38µm | | ASTM D7647 | >10 | **1** | 1 | 0 |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | **18/16/12** | 16/14/11 | 16/14/11 |

| FLUID DEGRADATION | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 0.70 | **0.26** | 0.24 | 0.35 |

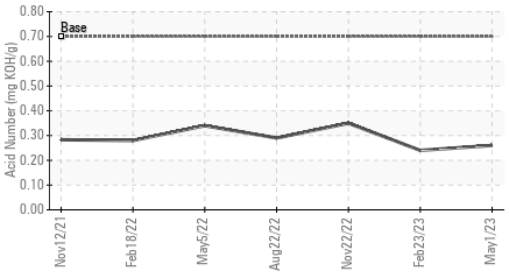
# OIL ANALYSIS REPORT

OIL DIAGNOSTICS

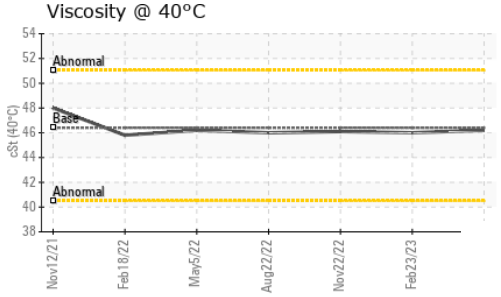
Particle Trend



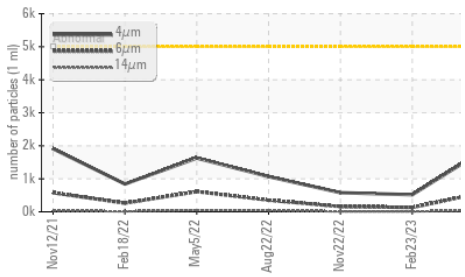

Acid Number




Viscosity @ 40°C

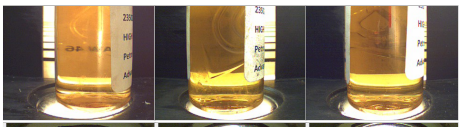



Particle Trend



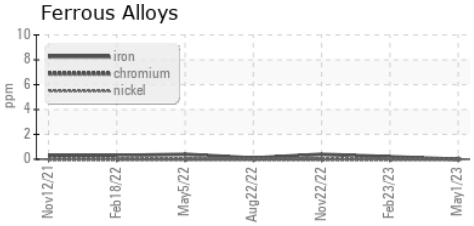

| VISUAL | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Debris | scalar | *Visual | NONE | **NONE** | NONE | 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 | >0.05 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 46.4 | **46.2** | 46.0 | 46.1 |

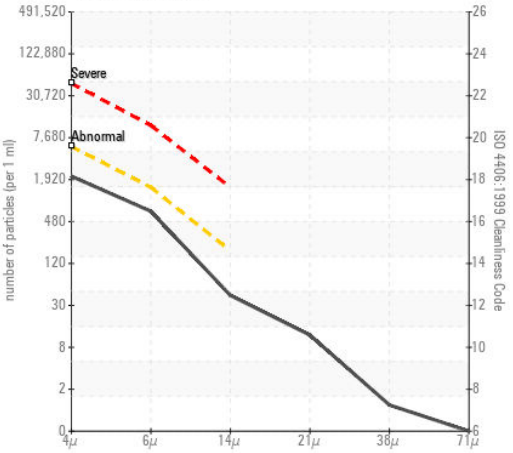
| SAMPLE IMAGES | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

## GRAPHS

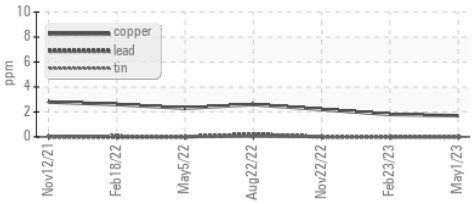
Ferrous Alloys



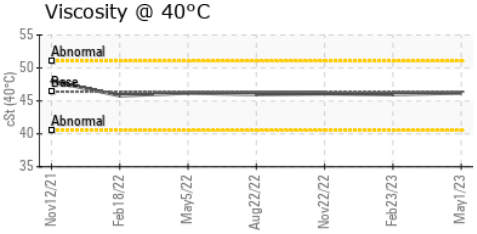

Particle Count



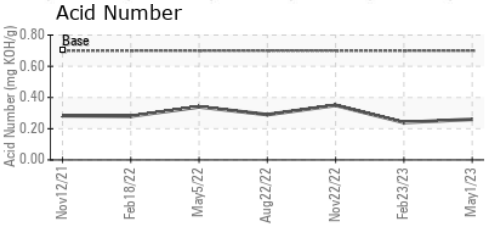

Non-ferrous Metals




Viscosity @ 40°C




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0095448
**Lab Number** : 05894373
**Unique Number** : 10550183
**Test Package** : PLANT

**Received** : 10 Jul 2023
**Diagnosed** : 12 Jul 2023
**Diagnostician** : Don Baldridge

*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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