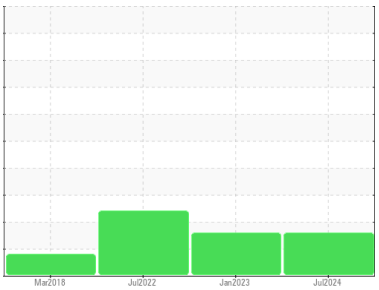
# OIL ANALYSIS REPORT

Sample Rating Trend




**WEAR**

Machine Id
## #4 SCHWING (S/N 203551)
Component
**Circulating Hydraulic System**
Fluid
**PETRO CANADA HYDREX AW 46 (--- LTR)**

## DIAGNOSIS

**Recommendation**
We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

**Wear**
Copper ppm levels are abnormal. Oil cooler core leaching or motor piston wear is indicated.

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

**Fluid Condition**
The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **PC0058418** | PC0058316 | PC0058221 |
| Sample Date | | Client Info | | **09 Jul 2024** | 16 Jan 2023 | 06 Jul 2022 |
| Machine Age | hrs | Client Info | | **62872** | 59833 | 59128 |
| Oil Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Not Changd |
| Sample Status | | | | **ABNORMAL** | ABNORMAL | ABNORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.05 | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185(m) | >20 | **1** | 1 | 2 |
| Chromium | ppm | ASTM D5185(m) | >20 | **1** | 1 | 4 |
| Nickel | ppm | ASTM D5185(m) | >20 | **<1** | <1 | 0 |
| Titanium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >20 | **<1** | <1 | <1 |
| Lead | ppm | ASTM D5185(m) | >20 | **6** | 4 | 3 |
| Copper | ppm | ASTM D5185(m) | >20 | ▲ **84** | ● 60 | ● 48 |
| Tin | ppm | ASTM D5185(m) | >20 | **1** | <1 | <1 |
| Antimony | ppm | ASTM D5185(m) | | **0** | <1 | 0 |
| Vanadium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Beryllium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |

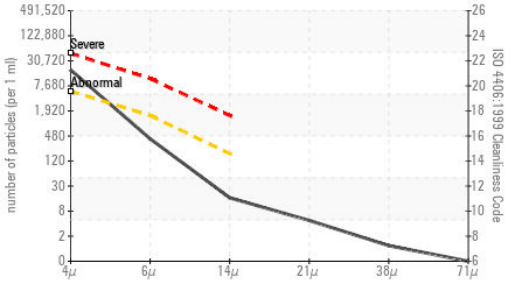
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | 0 | **0** | 0 | <1 |
| Barium | ppm | ASTM D5185(m) | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 0 | **0** | 0 | 0 |
| Manganese | ppm | ASTM D5185(m) | 0 | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | 0 | **0** | 0 | 0 |
| Calcium | ppm | ASTM D5185(m) | 50 | **44** | 48 | 45 |
| Phosphorus | ppm | ASTM D5185(m) | 330 | **308** | 332 | 308 |
| Zinc | ppm | ASTM D5185(m) | 430 | **366** | 377 | 387 |
| Sulfur | ppm | ASTM D5185(m) | 760 | **756** | 772 | 873 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >15 | **0** | <1 | <1 |
| Sodium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Potassium | ppm | ASTM D5185(m) | >20 | **0** | <1 | <1 |

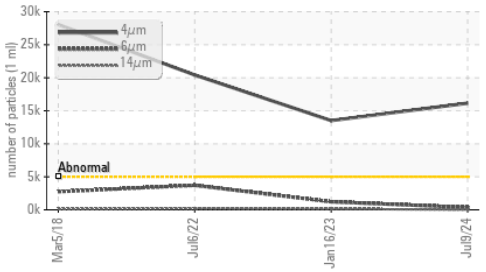
| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | ▲ **16153** | ▲ 13510 | ▲ 20419 |
| Particles >6µm | | ASTM D7647 | >1300 | **361** | 1218 | ▲ 3712 |
| Particles >14µm | | ASTM D7647 | >160 | **14** | 136 | ● 184 |
| Particles >21µm | | ASTM D7647 | >40 | **4** | 36 | 25 |
| Particles >38µm | | ASTM D7647 | >10 | **1** | 1 | 0 |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | ▲ **21/16/11** | ▲ 21/17/14 | ▲ 22/19/15 |

# OIL ANALYSIS REPORT

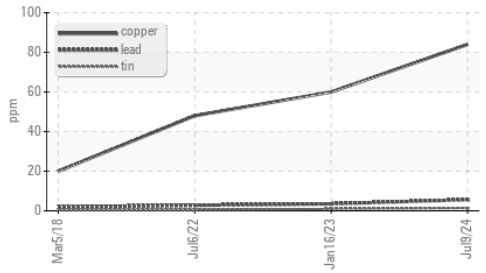
Particle Count



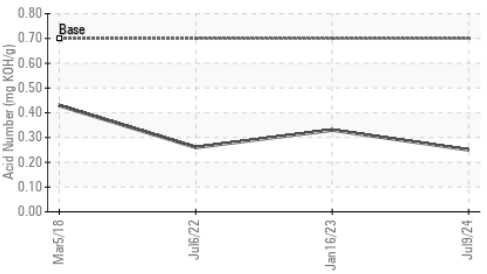

Particle Trend



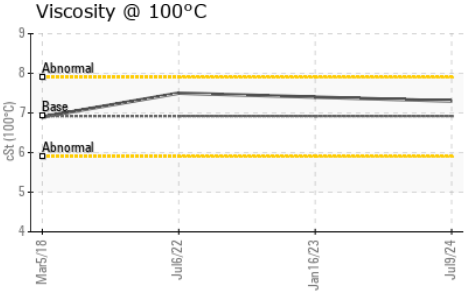

Non-ferrous Metals




Acid Number



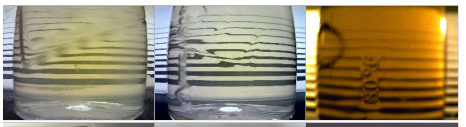

Viscosity @ 100°C




| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D974* | 0.70 | **0.25** | 0.33 | 0.26 |

| 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 | 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 | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D7279(m) | 46.4 | **46.2** | 46.0 | 45.8 |
| Visc @ 100°C | cSt | ASTM D7279(m) | 6.92 | **7.3** | 7.4 | 7.5 |
| Viscosity Index (VI) | Scale | ASTM D2270* | 104 | **119** | 124 | 128 |

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

ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : PC0058418
**Lab Number** : 02647805
**Unique Number** : 5813357
**Test Package** : IND 2 ( Additional Tests: KV100, VI )

**Received** : 15 Jul 2024
**Tested** : 16 Jul 2024
**Diagnosed** : 16 Jul 2024 - Kevin Marson

*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.*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