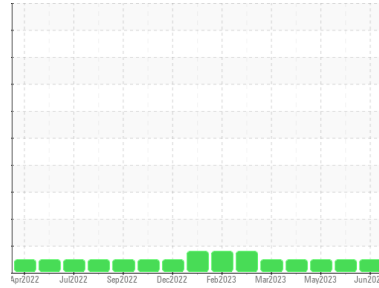


# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Machine Id  
**M5 (S/N 1457456)**

Component  
**Biogas Engine**

Fluid  
**PETRO CANADA SENTRON LD 8000 (--- GAL)**

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

### Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. 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 |             | <b>PCA0096499</b>  | PCA0096489  | PCA0096481  |
| Sample Date   | Client Info |             | <b>29 Jun 2023</b> | 03 Jun 2023 | 10 May 2023 |
| Machine Age   | hrs         | Client Info | <b>6835</b>        | 6334        | 5834        |
| Oil Age       | hrs         | Client Info | <b>2170</b>        | 1669        | 1169        |
| Oil Changed   | Client Info |             | <b>Changed</b>     | N/A         | N/A         |
| Sample Status |             |             | <b>NORMAL</b>      | NORMAL      | NORMAL      |

## CONTAMINATION

|        | method    | limit/base | current    | history1 | history2 |
|--------|-----------|------------|------------|----------|----------|
| Glycol | WC Method |            | <b>NEG</b> | NEG      | NEG      |

## WEAR METALS

|          | method | limit/base      | current      | history1 | history2 |
|----------|--------|-----------------|--------------|----------|----------|
| Iron     | ppm    | ASTM D5185m >45 | <b>16</b>    | 3        | 3        |
| Chromium | ppm    | ASTM D5185m >2  | <b>&lt;1</b> | 0        | <1       |
| Nickel   | ppm    | ASTM D5185m >2  | <b>0</b>     | 0        | 0        |
| Titanium | ppm    | ASTM D5185m     | <b>0</b>     | 0        | 0        |
| Silver   | ppm    | ASTM D5185m >5  | <b>&lt;1</b> | 0        | 0        |
| Aluminum | ppm    | ASTM D5185m >10 | <b>3</b>     | 3        | 6        |
| Lead     | ppm    | ASTM D5185m >5  | <b>&lt;1</b> | 0        | 0        |
| Copper   | ppm    | ASTM D5185m >14 | <b>&lt;1</b> | <1       | 0        |
| Tin      | ppm    | ASTM D5185m >13 | <b>1</b>     | <1       | <1       |
| Vanadium | ppm    | ASTM D5185m     | <b>0</b>     | <1       | 0        |
| Cadmium  | ppm    | ASTM D5185m     | <b>0</b>     | 0        | 0        |

## ADDITIVES

|            | method | limit/base       | current      | history1 | history2 |
|------------|--------|------------------|--------------|----------|----------|
| Boron      | ppm    | ASTM D5185m      | <b>3</b>     | 0        | 0        |
| Barium     | ppm    | ASTM D5185m      | <b>&lt;1</b> | 0        | 0        |
| Molybdenum | ppm    | ASTM D5185m      | <b>2</b>     | <1       | 1        |
| Manganese  | ppm    | ASTM D5185m      | <b>&lt;1</b> | <1       | <1       |
| Magnesium  | ppm    | ASTM D5185m      | <b>12</b>    | 12       | 14       |
| Calcium    | ppm    | ASTM D5185m 1351 | <b>1793</b>  | 1768     | 1625     |
| Phosphorus | ppm    | ASTM D5185m 302  | <b>344</b>   | 316      | 314      |
| Zinc       | ppm    | ASTM D5185m 358  | <b>447</b>   | 404      | 396      |
| Sulfur     | ppm    | ASTM D5185m 2758 | <b>3864</b>  | 3684     | 3748     |

## CONTAMINANTS

|           | method | limit/base       | current    | history1 | history2 |
|-----------|--------|------------------|------------|----------|----------|
| Silicon   | ppm    | ASTM D5185m >200 | <b>2</b>   | 1        | 2        |
| Sodium    | ppm    | ASTM D5185m      | <b>0</b>   | 2        | <1       |
| Potassium | ppm    | ASTM D5185m >20  | <b>1</b>   | <1       | 1        |
| Fuel      | %      | ASTM D3524 >4.0  | <b>0.4</b> | 0.4      | 0.3      |

## INFRA-RED

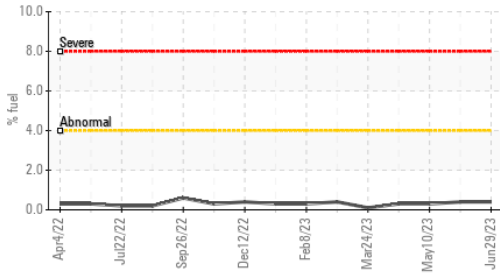
|           | method   | limit/base      | current     | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot %    | %        | *ASTM D7844     | <b>0.1</b>  | 0.1      | 0.1      |
| Nitration | Abs/cm   | *ASTM D7624 >20 | <b>6.0</b>  | 5.8      | 5.4      |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | <b>20.5</b> | 20.3     | 19.2     |

## FLUID DEGRADATION

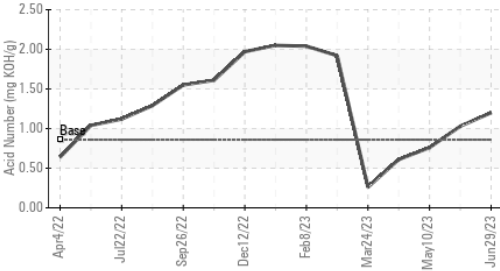
|                  | method   | limit/base      | current     | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Oxidation        | Abs/.1mm | *ASTM D7414 >25 | <b>14.2</b> | 14.9     | 12.9     |
| Acid Number (AN) | mg KOH/g | ASTM D8045 0.86 | <b>1.20</b> | 1.03     | 0.76     |
| Base Number (BN) | mg KOH/g | ASTM D2896 4.64 | <b>3.88</b> | 3.67     | 4.16     |

# OIL ANALYSIS REPORT

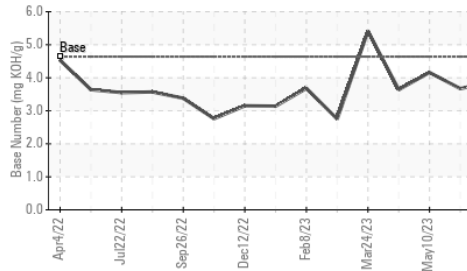
## Fuel Dilution



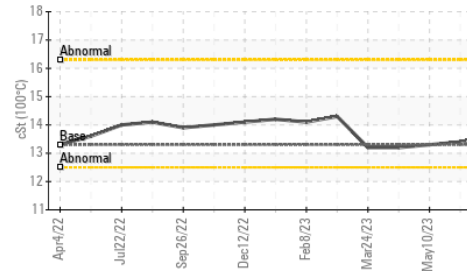
## Acid Number



## Base Number



## Viscosity @ 100°C

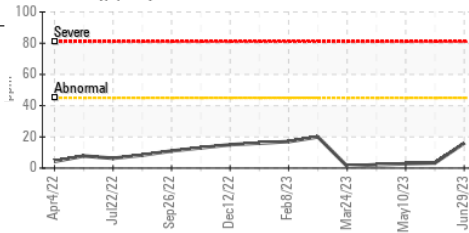


| VISUAL           | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal      | scalar | *Visual    | NONE    | NONE     | NONE     |
| Yellow Metal     | scalar | *Visual    | NONE    | NONE     | NONE     |
| Precipitate      | scalar | *Visual    | NONE    | NONE     | NONE     |
| Silt             | scalar | *Visual    | NONE    | NONE     | NONE     |
| Debris           | scalar | *Visual    | NONE    | NONE     | NONE     |
| Sand/Dirt        | scalar | *Visual    | NONE    | NONE     | NONE     |
| Appearance       | scalar | *Visual    | NORML   | NORML    | NORML    |
| Odor             | scalar | *Visual    | NORML   | NORML    | NORML    |
| Emulsified Water | scalar | *Visual    | >0.1    | NEG      | NEG      |
| Free Water       | scalar | *Visual    |         | NEG      | NEG      |

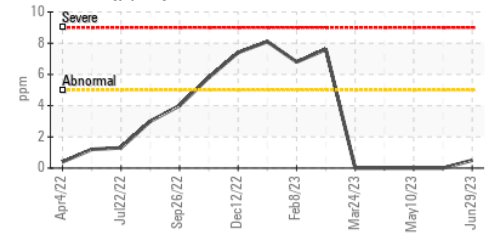
| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| Visc @ 100°C     | cSt    | ASTM D445  | 13.3    | 13.6     | 13.4     |

## GRAPHS

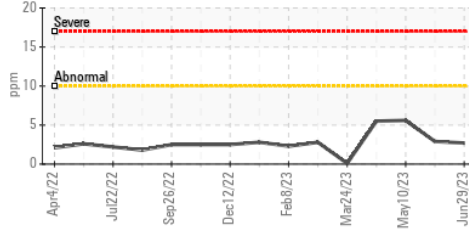
### Iron (ppm)



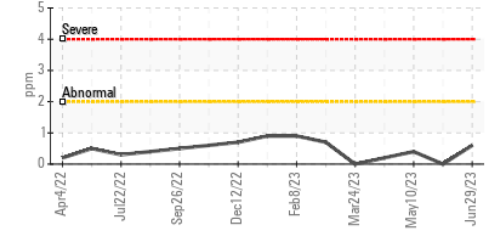
### Lead (ppm)



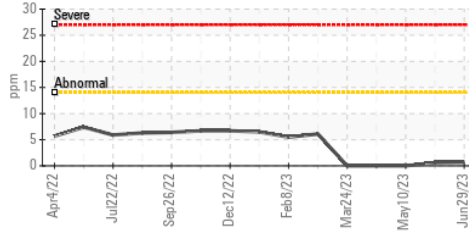
### Aluminum (ppm)



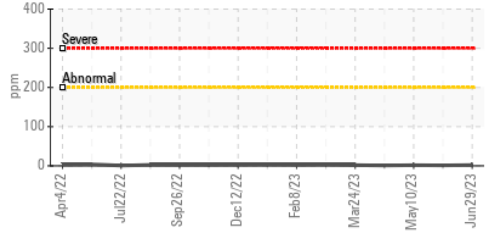
### Chromium (ppm)



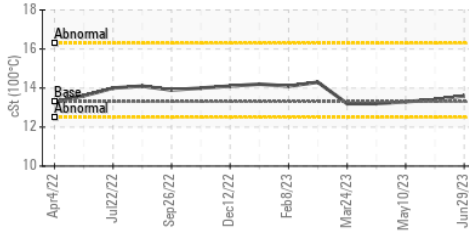
### Copper (ppm)



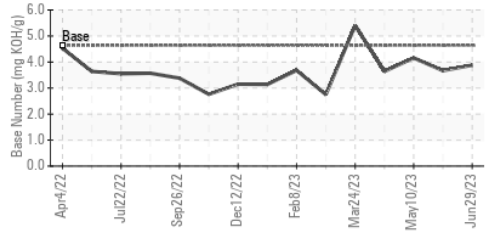
### Silicon (ppm)



### Viscosity @ 100°C



### Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PCA0096499 **Received** : 21 Jul 2023  
**Lab Number** : 05905010 **Diagnosed** : 25 Jul 2023  
**Unique Number** : 10566366 **Diagnostician** : Don Baldrige  
**Test Package** : MOB 2 ( Additional Tests: FuelDilution, PercentFuel )

**AMERICAN PETROLEUM**  
 CARR 865 KM 0.2 CAMPANILA  
 TOA BAJA, PR  
 US 00949  
 Contact: NEFTALI ORTIZ  
 nortiz@americanpetroleumpr.com

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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F: