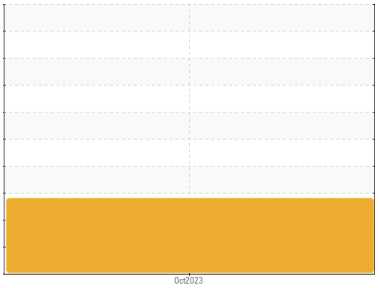
# PROBLEM SUMMARY

Sample Rating Trend

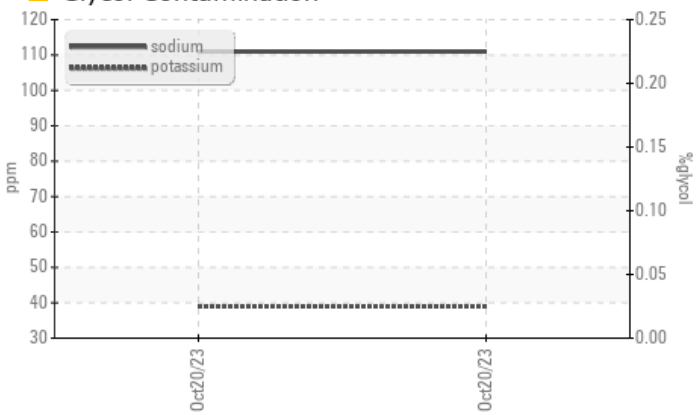



**GLYCOL**

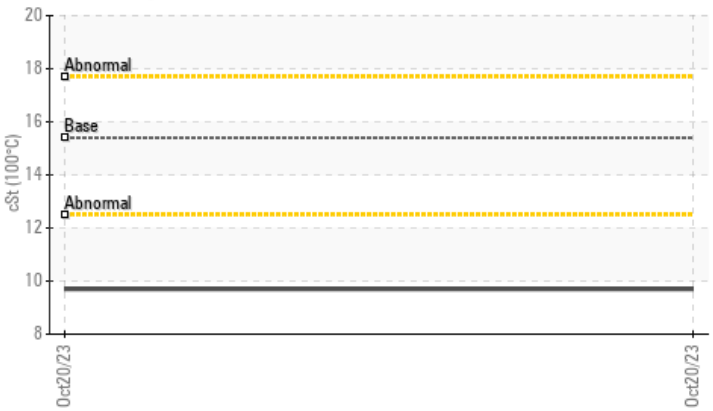
Machine Id
## KENWORTH 422029
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

## COMPONENT CONDITION SUMMARY

Glycol Contamination




Viscosity @ 100°C




## RECOMMENDATION

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

## PROBLEMATIC TEST RESULTS

| | | | | | | |
|---|---|---|---|---|---|---|
| Sample Status | | | | **ABNORMAL** | --- | --- |
| Sodium | ppm | ASTM D5185m | | ▲ **111** | --- | --- |
| Potassium | ppm | ASTM D5185m | >20 | ▲ **39** | --- | --- |
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | ▲ **9.7** | --- | --- |

**Customer Id:** GFL842
**Sample No.:** GFL0099164
**Lab Number:** 06005167
**Test Package:** FLEET

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
Jonathan Hester +1 919-379-4092 x4092
jhester@wearcheckusa.com

*To change component or sample information:*
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

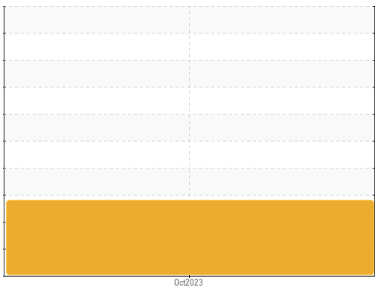
## RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|---|---|---|---|---|
| Change Fluid | --- | --- | ? | Oil and filter change at the time of sampling has been noted. |
| Change Filter | --- | --- | ? | Oil and filter change at the time of sampling has been noted. |
| Resample | --- | --- | ? | We recommend an early resample to monitor this condition. |
| Check Glycol Access | --- | --- | ? | We advise that you check for the source of the coolant leak. |

## HISTORICAL DIAGNOSIS

# OIL ANALYSIS REPORT

Sample Rating Trend




**GLYCOL**

Machine Id
## KENWORTH 422029
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

## DIAGNOSIS

**▲ Recommendation**

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

**Wear**

All component wear rates are normal.

**▲ Contamination**

Sodium and/or potassium levels are high. Fuel content negligible.

**▲ Fluid Condition**

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0099164** | --- | --- |
| Sample Date | | Client Info | | **20 Oct 2023** | --- | --- |
| Machine Age | hrs | Client Info | | **19416** | --- | --- |
| Oil Age | hrs | Client Info | | **307** | --- | --- |
| Oil Changed | | Client Info | | **Changed** | --- | --- |
| Sample Status | | | | **ABNORMAL** | --- | --- |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.2 | **NEG** | --- | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **51** | --- | --- |
| Chromium | ppm | ASTM D5185m | >20 | **2** | --- | --- |
| Nickel | ppm | ASTM D5185m | >4 | **1** | --- | --- |
| Titanium | ppm | ASTM D5185m | | **<1** | --- | --- |
| Silver | ppm | ASTM D5185m | >3 | **<1** | --- | --- |
| Aluminum | ppm | ASTM D5185m | >20 | **9** | --- | --- |
| Lead | ppm | ASTM D5185m | >40 | **13** | --- | --- |
| Copper | ppm | ASTM D5185m | >330 | **29** | --- | --- |
| Tin | ppm | ASTM D5185m | >15 | **2** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **<1** | --- | --- |
| Cadmium | ppm | ASTM D5185m | | **<1** | --- | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **35** | --- | --- |
| Barium | ppm | ASTM D5185m | 0 | **<1** | --- | --- |
| Molybdenum | ppm | ASTM D5185m | 60 | **62** | --- | --- |
| Manganese | ppm | ASTM D5185m | 0 | **1** | --- | --- |
| Magnesium | ppm | ASTM D5185m | 1010 | **843** | --- | --- |
| Calcium | ppm | ASTM D5185m | 1070 | **1156** | --- | --- |
| Phosphorus | ppm | ASTM D5185m | 1150 | **994** | --- | --- |
| Zinc | ppm | ASTM D5185m | 1270 | **1248** | --- | --- |
| Sulfur | ppm | ASTM D5185m | 2060 | **3359** | --- | --- |

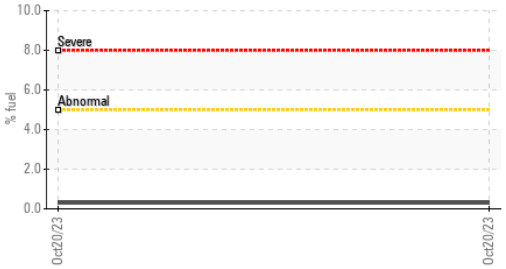
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **10** | --- | --- |
| Sodium | ppm | ASTM D5185m | | **▲ 111** | --- | --- |
| Potassium | ppm | ASTM D5185m | >20 | **▲ 39** | --- | --- |
| Fuel | % | ASTM D3524 | >5 | **0.3** | --- | --- |
| Glycol | % | *ASTM D2982 | | **NEG** | --- | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **1.2** | --- | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **21.7** | --- | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **8.9** | --- | --- |

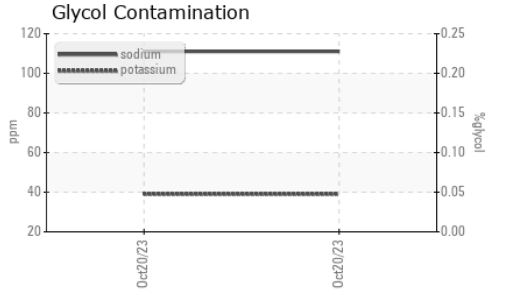
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **24.3** | --- | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **20.7** | --- | --- |

# OIL ANALYSIS REPORT

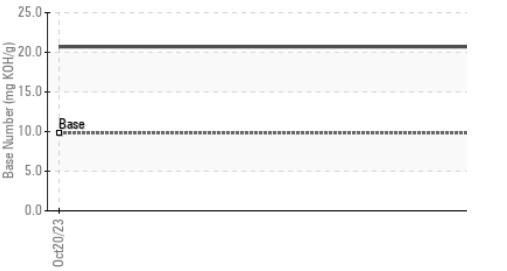
Fuel Dilution



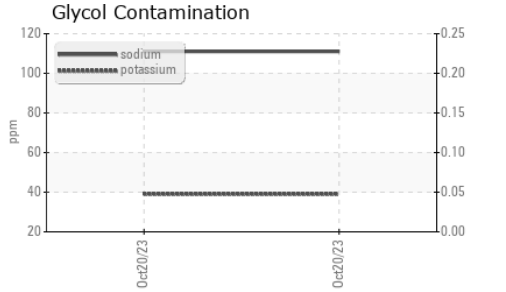

Glycol Contamination




Base Number




Glycol Contamination

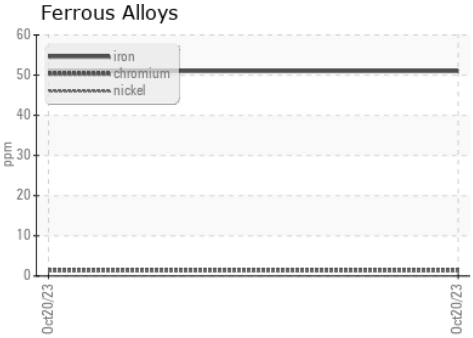



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | --- | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | --- | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | --- | --- |
| Silt | scalar | *Visual | NONE | **NONE** | --- | --- |
| Debris | scalar | *Visual | NONE | **NONE** | --- | --- |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | --- | --- |
| Appearance | scalar | *Visual | NORML | **NORML** | --- | --- |
| Odor | scalar | *Visual | NORML | **NORML** | --- | --- |
| Emulsified Water | scalar | *Visual | >0.2 | **NEG** | --- | --- |
| Free Water | scalar | *Visual | | **NEG** | --- | --- |

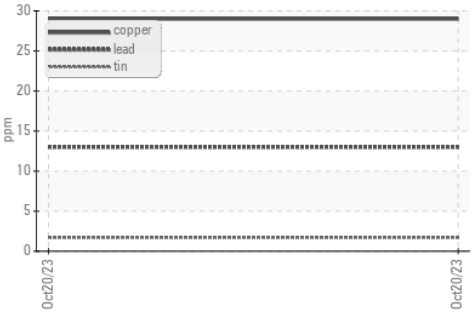
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | ▲ **9.7** | --- | --- |

## GRAPHS

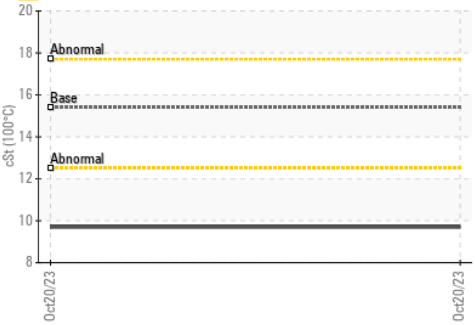
Ferrous Alloys



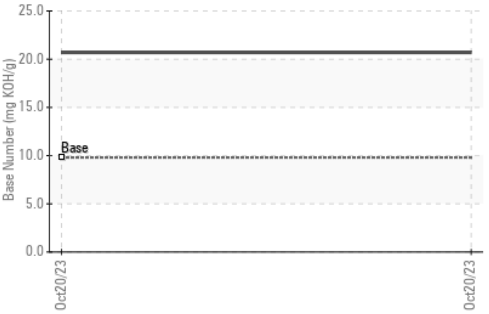

Non-ferrous Metals




▲ Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0099164 **Received** : 13 Nov 2023
**Lab Number** : 06005167 **Diagnosed** : 21 Nov 2023
**Unique Number** : 10738929 **Diagnostician** : Jonathan Hester
**Test Package** : FLEET ( Additional Tests: FuelDilution, Glycol, PercentFuel )

*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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