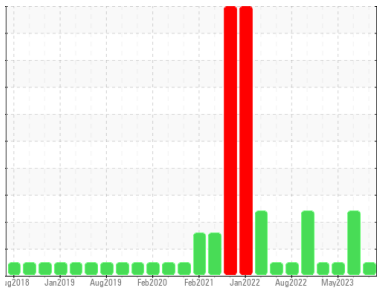
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Area
## KEMP QUARRIES / KEMP STONE - FAIRLAND [66778]
Machine Id
## WL119
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON HP 15W40 (--- GAL)**

## DIAGNOSIS

**Recommendation**
Resample at the next service interval to monitor. ( Customer Sample Comment: PM-1 changed filters and fluid )

**Wear**
All component wear rates are normal.

**Contamination**
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 condition of the oil is suitable for further service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **PCA0084808** | PCA0086458 | PCA0085740 |
| Sample Date | | Client Info | | **12 Oct 2023** | 09 Aug 2023 | 16 May 2023 |
| Machine Age | hrs | Client Info | | **6656** | 6527 | 6375 |
| Oil Age | hrs | Client Info | | **6656** | 6527 | 6375 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | ABNORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >5 | **<1.0** | <1.0 | <1.0 |
| Glycol | | WC Method | | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **40** | 62 | 54 |
| Chromium | ppm | ASTM D5185m | >20 | **1** | 2 | 2 |
| Nickel | ppm | ASTM D5185m | >4 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **8** | ▲ 13 | 11 |
| Lead | ppm | ASTM D5185m | >40 | **0** | 0 | <1 |
| Copper | ppm | ASTM D5185m | >330 | **6** | 1 | 2 |
| Tin | ppm | ASTM D5185m | >15 | **0** | 0 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

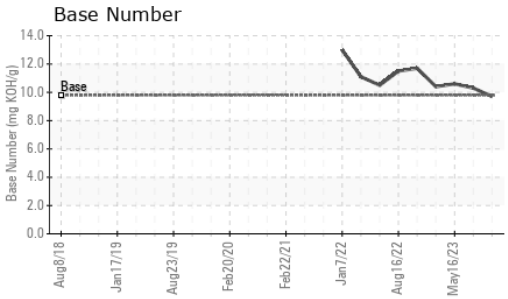
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **2** | 18 | 8 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **72** | 76 | 80 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | **1164** | 1250 | 1191 |
| Calcium | ppm | ASTM D5185m | | **1316** | 1800 | 1564 |
| Phosphorus | ppm | ASTM D5185m | | **1124** | 1285 | 1170 |
| Zinc | ppm | ASTM D5185m | | **1405** | 1594 | 1481 |
| Sulfur | ppm | ASTM D5185m | | **3093** | 4186 | 3772 |

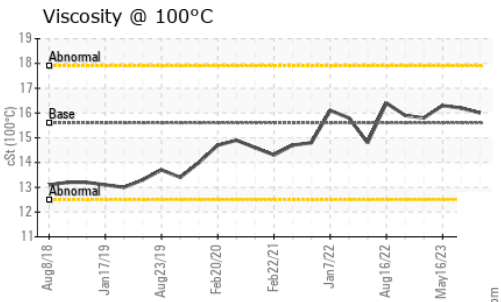
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **16** | ▲ 36 | 24 |
| Sodium | ppm | ASTM D5185m | | **4** | 4 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | **4** | 2 | 3 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.4** | 0.4 | 0.4 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **7.9** | 8.4 | 9.3 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **20.0** | 20.8 | 20.0 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **16.3** | 16.9 | 15.7 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **9.7** | 10.3 | 10.6 |

# OIL ANALYSIS REPORT

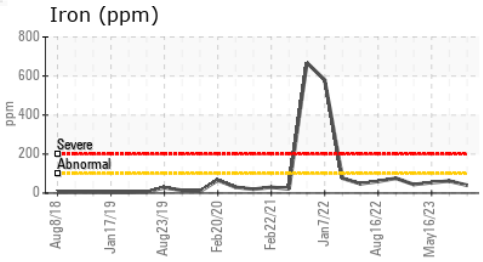


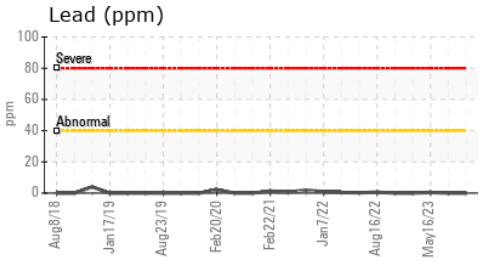



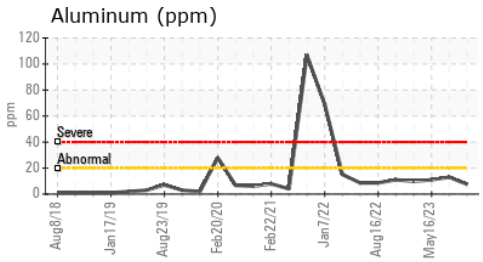

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

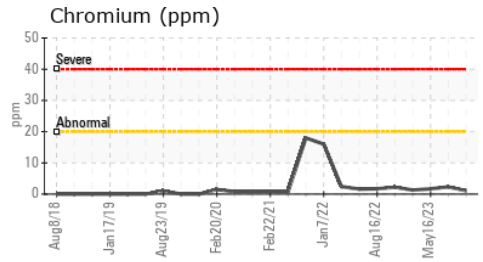
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.6 | **16.0** | 16.2 | 16.3 |

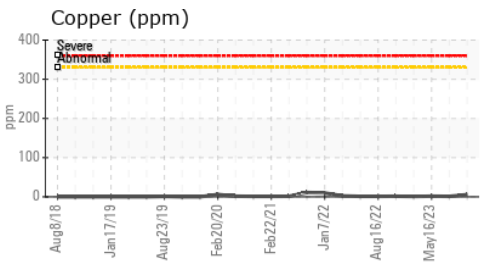
## GRAPHS

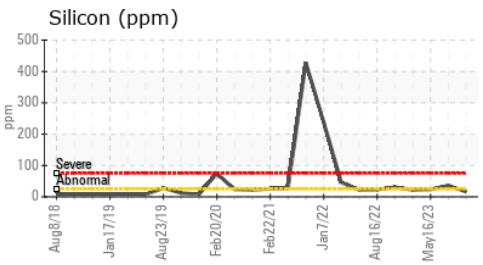


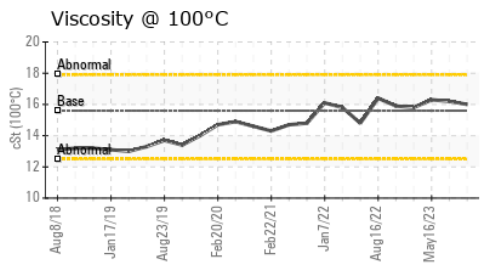



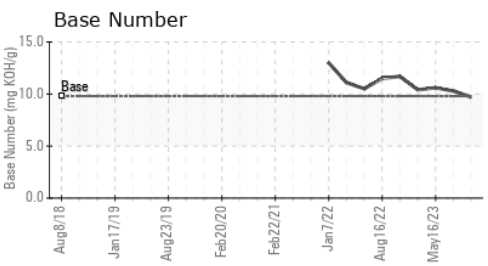




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0084808 **Received** : 23 Oct 2023
**Lab Number** : 05987155 **Diagnosed** : 25 Oct 2023
**Unique Number** : 10709817 **Diagnostician** : Don Baldridge
**Test Package** : MOB 1 ( Additional Tests: TBN )

*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)*

**Kemp Quarries - Kemp Stone - Fairland**
18350 S 590 Rd
Fairland, OK
US 74343
Contact:
fairland@kempstone.com
T:
F:

Report Id: KEMFAI [WUSCAR] 05987155 (Generated: 10/25/2023 14:45:44) Rev: 1

Submitted By: