

OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id
338705
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 10W30 (--- QTS)

DIAGNOSIS

▲ Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

▲ Wear

Cylinder, crank, or cam shaft wear is indicated.

Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. 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 acceptable for the time in service.

SAMPLE INFORMATION

| method | limit/base | current | history1 | history2 |
|---------------|-------------|--------------------|----------|----------|
| Sample Number | Client Info | PCA0121006 | --- | --- |
| Sample Date | Client Info | 10 Jun 2024 | --- | --- |
| Machine Age | mls | Client Info | 0 | --- |
| Oil Age | mls | Client Info | 0 | --- |
| Oil Changed | Client Info | Changed | --- | --- |
| Sample Status | | ABNORMAL | --- | --- |

CONTAMINATION

| method | limit/base | current | history1 | history2 |
|--------|----------------|----------------|----------|----------|
| Fuel | WC Method >5 | <1.0 | --- | --- |
| Water | WC Method >0.2 | NEG | --- | --- |
| Glycol | WC Method | NEG | --- | --- |

WEAR METALS

| method | limit/base | current | history1 | history2 |
|----------|----------------------|--------------|----------|----------|
| Iron | ppm ASTM D5185m >100 | ▲ 111 | --- | --- |
| Chromium | ppm ASTM D5185m >20 | 3 | --- | --- |
| Nickel | ppm ASTM D5185m >4 | 2 | --- | --- |
| Titanium | ppm ASTM D5185m | <1 | --- | --- |
| Silver | ppm ASTM D5185m >3 | <1 | --- | --- |
| Aluminum | ppm ASTM D5185m >20 | 31 | --- | --- |
| Lead | ppm ASTM D5185m >40 | <1 | --- | --- |
| Copper | ppm ASTM D5185m >330 | 41 | --- | --- |
| Tin | ppm ASTM D5185m >15 | 5 | --- | --- |
| Vanadium | ppm ASTM D5185m | <1 | --- | --- |
| Cadmium | ppm ASTM D5185m | <1 | --- | --- |

ADDITIVES

| method | limit/base | current | history1 | history2 |
|------------|----------------------|-------------|----------|----------|
| Boron | ppm ASTM D5185m 2 | 21 | --- | --- |
| Barium | ppm ASTM D5185m 0 | 1 | --- | --- |
| Molybdenum | ppm ASTM D5185m 50 | 51 | --- | --- |
| Manganese | ppm ASTM D5185m 0 | 11 | --- | --- |
| Magnesium | ppm ASTM D5185m 950 | 600 | --- | --- |
| Calcium | ppm ASTM D5185m 1050 | 1841 | --- | --- |
| Phosphorus | ppm ASTM D5185m 995 | 823 | --- | --- |
| Zinc | ppm ASTM D5185m 1180 | 1066 | --- | --- |
| Sulfur | ppm ASTM D5185m 2600 | 2256 | --- | --- |

CONTAMINANTS

| method | limit/base | current | history1 | history2 |
|-----------|---------------------|-----------|----------|----------|
| Silicon | ppm ASTM D5185m >25 | 12 | --- | --- |
| Sodium | ppm ASTM D5185m | 6 | --- | --- |
| Potassium | ppm ASTM D5185m >20 | 67 | --- | --- |

INFRA-RED

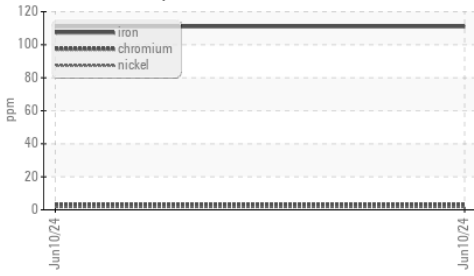
| method | limit/base | current | history1 | history2 |
|-----------|--------------------------|-------------|----------|----------|
| Soot % | % *ASTM D7844 >3 | 0.7 | --- | --- |
| Nitration | Abs/cm *ASTM D7624 >20 | 12.8 | --- | --- |
| Sulfation | Abs/.1mm *ASTM D7415 >30 | 24.6 | --- | --- |

FLUID DEGRADATION

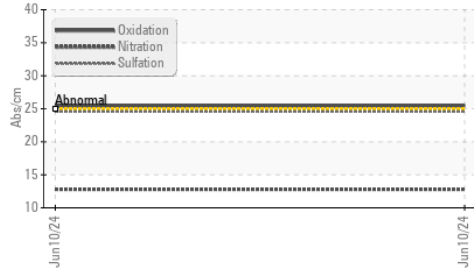
| method | limit/base | current | history1 | history2 |
|------------------|--------------------------|-------------|----------|----------|
| Oxidation | Abs/.1mm *ASTM D7414 >25 | 25.4 | --- | --- |
| Base Number (BN) | mg KOH/g ASTM D2896 | 7.4 | --- | --- |

OIL ANALYSIS REPORT

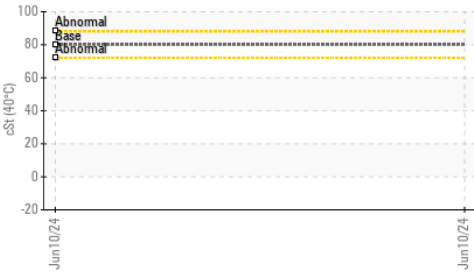
▲ Ferrous Alloys



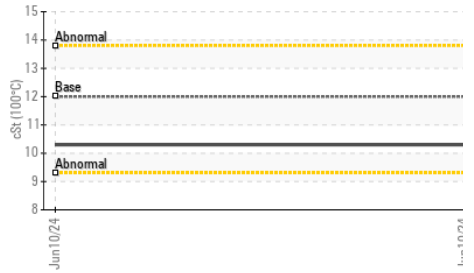
FT-IR (Direct Trend)



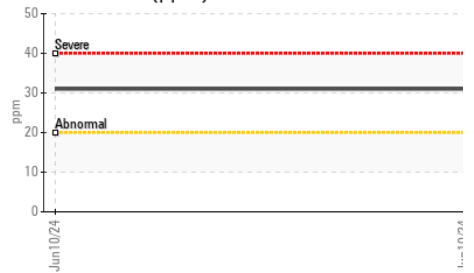
Viscosity @ 40°C



Viscosity @ 100°C



Aluminum (ppm)



| 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 | --- | --- |

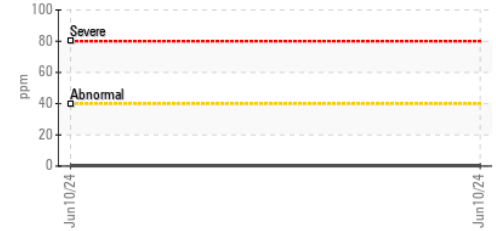
| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|-----------------|-------------|----------|----------|
| Visc @ 100°C | cSt | ASTM D445 12.00 | 10.3 | --- | --- |

GRAPHS

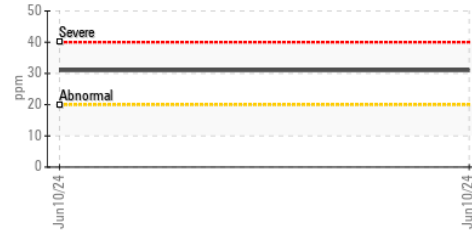
▲ Iron (ppm)



Lead (ppm)



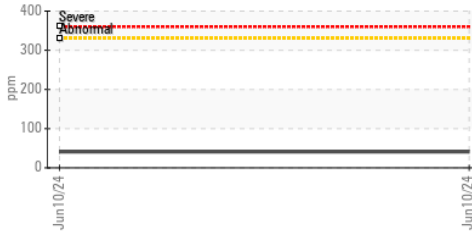
Aluminum (ppm)



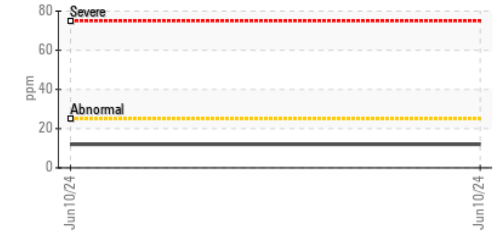
Chromium (ppm)



Copper (ppm)



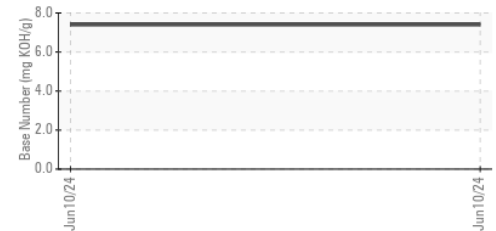
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0121006 **Received** : 02 Jul 2024
Lab Number : 06225962 **Tested** : 05 Jul 2024
Unique Number : 11109455 **Diagnosed** : 05 Jul 2024 - Jonathan Hester
Test Package : MOB 1 (Additional Tests: TBN, KV40)

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 63 REPAUPO STATION ROAD
 LOGAN TOWNSHIP, NJ
 US 08085
 Contact: ED DAVIS
 edavis@millertransgroup.com
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 F: (856)214-3663

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)