

OIL ANALYSIS REPORT

Sample Rating Trend

Area (AU402U) Supermarket - Tractor FREIGHTLINER 107A8839

Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (11 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

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.

| | IATION | method | limit/base | current | history1 | history2 |
|---|---|---|--|--|--|---|
| Sample Number | | Client Info | | PCA0124125 | PCA0116958 | PCA0104066 |
| Sample Date | | Client Info | | 15 Jun 2024 | 17 Feb 2024 | 07 Oct 2023 |
| Machine Age | mls | Client Info | | 246043 | 230887 | 214089 |
| Oil Age | mls | Client Info | | 15156 | 16798 | 13471 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| CONTAMINATI | ON | method | limit/base | current | history1 | history2 |
| Fuel | | WC Method | >5 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| WEAR METALS | 5 | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >80 | 11 | 10 | 19 |
| Chromium | ppm | ASTM D5185m | >5 | <1 | <1 | 1 |
| Nickel | ppm | ASTM D5185m | >2 | 0 | 0 | <1 |
| Titanium | ppm | ASTM D5185m | ~- | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >30 | 6 | 2 | 8 |
| Lead | | ASTM D5185m | >30 | 0 | 0 | 0 |
| | ppm | ASTM D5185m | >150 | 4 | 4 | 9 |
| Copper Tin | ppm | ASTM D5185m | >5 | 4 <1 | 4 | 1 |
| Vanadium | ppm ppm | ASTM D5185m | >0 | 0 | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| | ppm | | | • | 0 | 0 |
| | | method | | | history1 | history2 |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| Boron | ppm | ASTM D5185m | 2 | 5 | 7 | 7 |
| Boron Barium | ppm | ASTM D5185m ASTM D5185m | 2 0 | 5 0 | 7 <1 | 7 0 |
| Boron Barium Molybdenum | ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 | 5 0 65 | 7 <1 63 | 7 0 63 |
| Boron Barium Molybdenum Manganese | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 0 | 5 0 65 0 | 7 <1 63 0 | 7 0 63 <1 |
| Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 0 950 | 5 0 65 0 953 | 7 <1 63 0 857 | 7 0 63 <1 862 |
| Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 0 950 1050 | 5 0 65 0 953 1081 | 7 <1 63 0 857 964 | 7 0 63 <1 862 1068 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus | ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 0 950 1050 995 | 5 0 65 0 953 1081 1050 | 7 <1 63 0 857 964 839 | 7 0 63 <1 862 1068 952 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 950 1050 995 1180 | 5 0 65 0 953 1081 1050 1262 | 7 <1 63 0 857 964 839 1110 | 7 0 63 <1 862 1068 952 1186 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 950 1050 995 1180 2600 | 5 0 65 0 953 1081 1050 1262 2855 | 7 <1 63 0 857 964 839 1110 2595 | 7 0 63 <1 862 1068 952 1186 2527 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN | ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 950 1050 995 1180 2600 | 5 0 65 0 953 1081 1050 1262 2855 current | 7 <1 63 0 857 964 839 1110 2595 history1 | 7 0 63 <1 862 1068 952 1186 2527 history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon | ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 950 1050 995 1180 2600 | 5 0 65 0 953 1081 1050 1262 2855 current 4 | 7 <1 63 0 857 964 839 1110 2595 history1 4 | 7 0 63 <1 862 1068 952 1186 2527 history2 6 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 950 1050 995 1180 2600 limit/base >20 | 5 0 65 0 953 1081 1050 1262 2855 <u>current</u> 4 < | 7 <1 63 0 857 964 839 1110 2595 history1 4 0 | 7 0 63 <1 862 1068 952 1186 2527 history2 6 3 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium | ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 950 1050 995 1180 2600 limit/base >20 | 5 0 65 0 953 1081 1050 1262 2855 current 4 | 7 <1 63 0 857 964 839 1110 2595 history1 4 | 7 0 63 <1 862 1068 952 1186 2527 history2 6 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 950 1050 995 1180 2600 limit/base >20 | 5 0 65 0 953 1081 1050 1262 2855 <u>current</u> 4 < | 7 <1 63 0 857 964 839 1110 2595 history1 4 0 | 7 0 63 <1 862 1068 952 1186 2527 history2 6 3 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % | ppm | ASTM D5185m ASTM D5185m | 2 0 50 950 1050 995 1180 2600 limit/base >20 | 5 0 65 0 953 1081 1050 1262 2855 current 4 < 3 | 7 <1 63 0 857 964 839 1110 2595 history1 4 0 3 history1 0.5 | 7 0 63 <1 862 1068 952 1186 2527 history2 6 3 6 3 6 history2 1.1 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | 2 0 50 0 950 1050 995 1180 2600 limit/base >20 limit/base | 5 0 65 0 953 1081 1050 1262 2855 current 4 <1 3 current | 7 <1 63 0 857 964 839 1110 2595 history1 4 0 3 history1 | 7 0 63 <1 862 1068 952 1186 2527 history2 6 3 6 3 6 history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % | ppm | ASTM D5185m ASTM D5185m | 2 0 50 0 950 1050 995 1180 2600 imit/base >20 >20 imit/base >3 | 5 0 65 0 953 1081 1050 1262 2855 current 4 <1 3 current 0.6 | 7 <1 63 0 857 964 839 1110 2595 history1 4 0 3 history1 0.5 | 7 0 63 <1 862 1068 952 1186 2527 history2 6 3 6 3 6 history2 1.1 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration | ppm ppm ppm ppm ppm ppm ppm ppm r spm ppm ppm ppm ppm spm ppm spm ppm ppm | ASTM D5185m ASTM D5185m | 2 0 50 950 1050 995 1180 2600 <i>limit/base</i> >20 <i>limit/base</i> >3 >20 | 5 0 65 0 953 1081 1050 1262 2855 current 4 <1 3 current 0.6 7.5 | 7 <1 63 0 857 964 839 1110 2595 history1 4 0 3 history1 0.5 6.6 | 7 0 63 <1 862 1068 952 1186 2527 history2 6 3 6 3 6 history2 1.1 9.0 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation | ppm ppm ppm ppm ppm ppm ppm ppm r spm ppm ppm ppm ppm spm ppm spm ppm ppm | ASTM D5185m ASTM D5185m | 2 0 50 0 950 1050 995 1180 2600 imit/base >20 imit/base >3 >20 >30 | 5 0 65 0 953 1081 1050 1262 2855 current 4 <1 3 current 0.6 7.5 18.8 | 7 <1 63 0 857 964 839 1110 2595 history1 4 0 3 history1 0.5 6.6 18.7 | 7 0 63 <1 862 1068 952 1186 2527 history2 6 3 6 3 6 history2 1.1 9.0 21.6 |

NORMAL



1

Abnorma

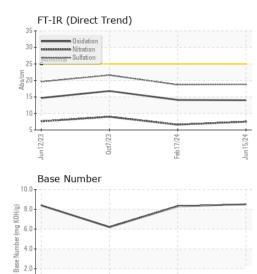
15 14 13 cSt (100°C) B

8

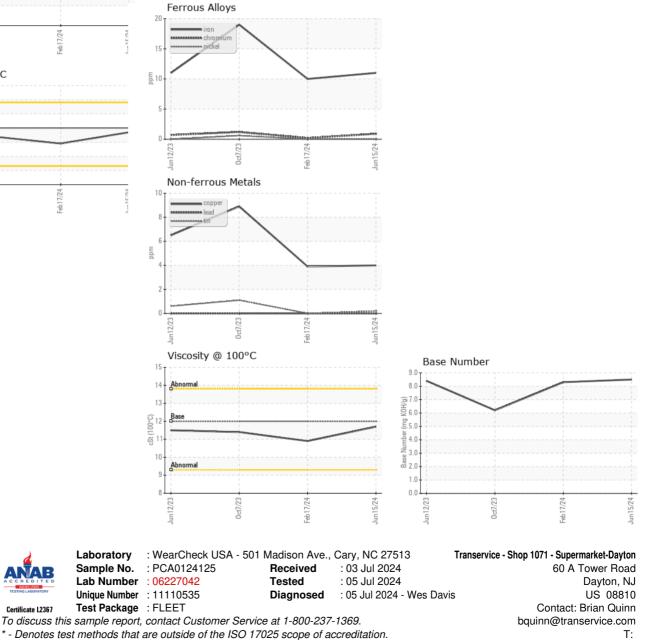
Jun12/23

Viscosity @ 100°C

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 PROPE | RTIES | method | limit/base | current | history1 | history2 |
| Visc @ 100°C | cSt | ASTM D445 | 12.00 | 11.7 | 10.9 | 11.4 |
| GRAPHS | | | | | | |



Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

F: