

OIL ANALYSIS REPORT

Sample Number

Sample Date

Machine Id **PETERBILT 210006**

Componenτ 9 Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (5 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

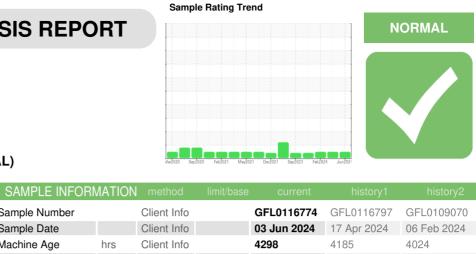
All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

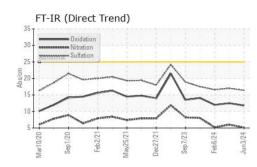
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

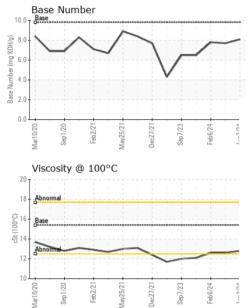


| CONTAMINATION method limit/base current history1 history1 Fuel WC Method >5 <1.0 <1.0 <1.0 <1.0 Glycol WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG VEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >20 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >30 0 0 0 Copper ppm ASTM D5185m >30 0 0 0 Current ppm ASTM D5185m >30 0 0 0 Current ppm ASTM D5185m >30 0 1 0 Coppe | CD LOL- | 0010020 | IT API 2024 | 00 0011 2024 | | | | Campic Date |
|--|----------|---------|-------------|--------------|------------|-------------|----------|------------------|
| Oil Changed Client Info Not Changd N/A N/A Sample Status Image Status Nor MAL NORMAL NORMAL | 4 | 4024 | 4185 | 4298 | | Client Info | hrs | Machine Age |
| Sample Status Image: Sample Status NORMAL Normation and and and and and and and and and an | 2 | 2542 | 2703 | 2816 | | Client Info | hrs | Oil Age |
| Sample Status NORMAL NORMAL | | N/A | N/A | Not Changd | | Client Info | | Oil Changed |
| CONTAMINATION method limit/base current history1 history1 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >100 3 7 4 Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >30 0 0 0 Aduminum ppm ASTM D5185m >20 4 4 3 Lead ppm ASTM D5185m >20 4 4 3 Lead ppm ASTM D5185m >0 0 0 0 Cadmium< | RMAL | NORMAL | NORMAL | - | | | | Sample Status |
| Fuel WC Method >5 <1.0 | history2 | histo | historv1 | current | limit/base | method | ON | |
| Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >100 3 7 4 Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >4 0 0 -1 Silver ppm ASTM D5185m >3 0 0 -1 0 Copper ppm ASTM D5185m >20 4 4 3 Lead ppm ASTM D5185m >40 0 <1 | | | | | | | | |
| Glycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history1 history1 Iron ppm ASTM D5185m >100 3 7 4 Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >4 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 4 4 3 Lead ppm ASTM D5185m >330 <1 | | | | | | | | |
| WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >100 3 7 4 Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >20 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 4 4 3 Lead ppm ASTM D5185m >20 4 4 3 Lead ppm ASTM D5185m >40 0 <1 | | | | | 20.L | | | |
| Iron ppm ASTM D5185m >100 3 7 4 Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >4 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >30 0 0 0 Aluminum ppm ASTM D5185m >20 4 4 3 Lead ppm ASTM D5185m >20 4 4 3 Copper ppm ASTM D5185m >330 <1 | history2 | | | | limit/booo | | 2 | |
| Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >4 0 0 0 Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >20 4 4 3 Lead ppm ASTM D5185m >20 4 4 3 Lead ppm ASTM D5185m >20 4 4 3 Lead ppm ASTM D5185m >40 0 <1 | | | | | | | | |
| Nickel ppm ASTM D5185m >4 0 0 0 Titanium ppm ASTM D5185m >3 0 0 <1 | | | | | | | | |
| Titanium ppm ASTM D5185m 0 0 <1 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 4 4 3 Lead ppm ASTM D5185m >330 <1 | | | | | | | | |
| Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 4 4 3 Lead ppm ASTM D5185m >40 0 <1 0 Copper ppm ASTM D5185m >330 <1 <1 0 Tin ppm ASTM D5185m >15 <1 <1 <1 <1 Vanadium ppm ASTM D5185m >15 <1 <1 <1 <1 Vanadium ppm ASTM D5185m 0 <14 13 21 Cadmium ppm ASTM D5185m 0 <14 13 21 Barium ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 829 798 790 Calcium ppm ASTM D5185m 1 | | | | - | >4 | | | |
| Aluminum ppm ASTM D5185m >20 4 4 3 Lead ppm ASTM D5185m >40 0 <1 | | | | | | | ppm | |
| Lead ppm ASTM D5185m >40 0 <1 0 Copper ppm ASTM D5185m >330 <1 | | | | - | | | ppm | |
| Copper ppm ASTM D5185m >330 <1 <1 0 Tin ppm ASTM D5185m >15 <1 | | 3 | 4 | | >20 | ASTM D5185m | ppm | Aluminum |
| Tin ppm ASTM D5185m >15 <1 <1 <1 Vanadium ppm ASTM D5185m 0 <1 | | 0 | <1 | 0 | >40 | ASTM D5185m | ppm | Lead |
| Vanadium ppm ASTM D5185m 0 <1 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 hist Boron ppm ASTM D5185m 0 14 13 21 Barium ppm ASTM D5185m 0 <1 | | 0 | <1 | <1 | >330 | ASTM D5185m | ppm | Copper |
| Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 14 13 21 Barium ppm ASTM D5185m 0 <1 | :1 | <1 | <1 | <1 | >15 | ASTM D5185m | ppm | Tin |
| ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 14 13 21 Barium ppm ASTM D5185m 0 <1 | :1 | <1 | <1 | 0 | | ASTM D5185m | ppm | Vanadium |
| Boron ppm ASTM D5185m 0 14 13 21 Barium ppm ASTM D5185m 0 <1 0 0 Molybdenum ppm ASTM D5185m 60 56 60 61 Manganese ppm ASTM D5185m 0 <1 <1 0 0 Magnesium ppm ASTM D5185m 1010 829 798 790 Calcium ppm ASTM D5185m 1010 829 798 790 Calcium ppm ASTM D5185m 1070 1051 1146 1088 Phosphorus ppm ASTM D5185m 1270 1119 1113 1127 Sulfur ppm ASTM D5185m 2060 3242 3362 294* CONTAMINANTS method limit/base current history1 hist Silicon ppm ASTM D5185m >20 8 7 5 INFRA-RED method limit/b | | 0 | 0 | 0 | | ASTM D5185m | ppm | Cadmium |
| Barium ppm ASTM D5185m 0 <1 | history2 | histo | history1 | current | limit/base | method | | ADDITIVES |
| Molybdenum ppm ASTM D5185m 60 56 60 61 Manganese ppm ASTM D5185m 0 <1 | 1 | 21 | 13 | 14 | 0 | ASTM D5185m | ppm | Boron |
| Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 829 798 790 Calcium ppm ASTM D5185m 1010 829 798 790 Calcium ppm ASTM D5185m 1070 1051 1146 1088 Phosphorus ppm ASTM D5185m 1270 1018 945 964 Zinc ppm ASTM D5185m 1270 1119 1113 1127 Sulfur ppm ASTM D5185m 2060 3242 3362 294* CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 2 3 Sodium ppm ASTM D5185m >20 8 7 5 INFRA-RED method limit/base current history1 history1 Soot % % 'ASTM D7844 | | 0 | 0 | <1 | 0 | ASTM D5185m | ppm | Barium |
| Magnesium ppm ASTM D5185m 1010 829 798 790 Calcium ppm ASTM D5185m 1070 1051 1146 1085 Phosphorus ppm ASTM D5185m 1070 1018 945 964 Zinc ppm ASTM D5185m 1270 1119 1113 1127 Sulfur ppm ASTM D5185m 2060 3242 3362 2943 CONTAMINANTS method limit/base current history1 hist Silicon ppm ASTM D5185m >25 4 2 3 Sodium ppm ASTM D5185m >20 8 7 5 INFRA-RED method limit/base current history1 history1 Nitration Abs/cm *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/.mm *ASTM D7415 >30 16.4 17.0 16.6 | 1 | 61 | 60 | 56 | 60 | ASTM D5185m | ppm | Molybdenum |
| Calcium ppm ASTM D5185m 1070 1051 1146 1088 Phosphorus ppm ASTM D5185m 1150 1018 945 964 Zinc ppm ASTM D5185m 1270 1119 1113 1127 Sulfur ppm ASTM D5185m 2060 3242 3362 2943 CONTAMINANTS method limit/base current history1 his Silicon ppm ASTM D5185m >25 4 2 3 Sodium ppm ASTM D5185m >25 4 2 3 Sodium ppm ASTM D5185m >20 8 7 5 INFRA-RED method limit/base current history1 hist Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.1 6.0 5.2 Sulfation Abs/.1mm *ASTM D7415 3 | | 0 | <1 | <1 | 0 | ASTM D5185m | ppm | Manganese |
| Phosphorus ppm ASTM D5185m 1150 1018 945 964 Zinc ppm ASTM D5185m 1270 1119 1113 1127 Sulfur ppm ASTM D5185m 2060 3242 3362 2943 CONTAMINANTS method limit/base current history1 his Silicon ppm ASTM D5185m >25 4 2 3 Sodium ppm ASTM D5185m >25 4 2 3 Sodium ppm ASTM D5185m >25 4 2 3 Sodium ppm ASTM D5185m >20 8 7 5 INFRA-RED method limit/base current history1 his Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.1 6.0 5.2 Sulfation Abs/.1mm *ASTM D7415 >30 | 90 | 790 | 798 | 829 | 1010 | ASTM D5185m | ppm | Magnesium |
| Zinc ppm ASTM D5185m 1270 1119 1113 1127 Sulfur ppm ASTM D5185m 2060 3242 3362 2947 CONTAMINANTS method limit/base current history1 his Silicon ppm ASTM D5185m >25 4 2 3 Sodium ppm ASTM D5185m >25 4 2 3 Sodium ppm ASTM D5185m >25 4 2 3 Potassium ppm ASTM D5185m >20 8 7 5 INFRA-RED method limit/base current history1 his Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.1 6.0 5.2 Sulfation Abs/.1mm *ASTM D7415 >30 16.4 17.0 16.6 | 085 | 1085 | 1146 | 1051 | 1070 | ASTM D5185m | ppm | Calcium |
| Sulfur ppm ASTM D5185m 2060 3242 3362 294 CONTAMINANTS method limit/base current history1 his Silicon ppm ASTM D5185m >25 4 2 3 Sodium ppm ASTM D5185m >25 4 2 3 Sodium ppm ASTM D5185m >20 8 7 5 INFRA-RED method limit/base current history1 hist Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.1 6.0 5.2 Sulfation Abs/.1mm *ASTM D7415 >30 16.4 17.0 16.6 | 64 | 964 | 945 | 1018 | 1150 | ASTM D5185m | ppm | Phosphorus |
| CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 2 3 Sodium ppm ASTM D5185m >25 4 2 3 Potassium ppm ASTM D5185m >20 8 7 5 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.1 6.0 5.2 Sulfation Abs/.1mm *ASTM D7415 >30 16.4 17.0 16.6 | 127 | 1127 | 1113 | 1119 | 1270 | ASTM D5185m | ppm | Zinc |
| Silicon ppm ASTM D5185m >25 4 2 3 Sodium ppm ASTM D5185m >25 4 2 3 Potassium ppm ASTM D5185m >20 8 7 5 INFRA-RED method limit/base current history1 his Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.1 6.0 5.2 Sulfation Abs/.1mm *ASTM D7415 >30 16.4 17.0 16.4 | 941 | 2941 | 3362 | 3242 | 2060 | ASTM D5185m | ppm | Sulfur |
| Sodium ppm ASTM D5185m <1 <1 1 Potassium ppm ASTM D5185m<>20 8 7 5 INFRA-RED method limit/base current history1 his Soot % % *ASTM D7844<>3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624<>20 5.1 6.0 5.2 Sulfation Abs/.1mm *ASTM D7415<>30 16.4 17.0 16.6 | history2 | histo | history1 | current | limit/base | method | TS | CONTAMINAN |
| Potassium ppm ASTM D5185m >20 8 7 5 INFRA-RED method limit/base current history1 his Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.1 6.0 5.2 Sulfation Abs/.1mm *ASTM D7415 >30 16.4 17.0 16.6 | | 3 | 2 | 4 | >25 | ASTM D5185m | ppm | Silicon |
| INFRA-RED method limit/base current history1 his Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.1 6.0 5.2 Sulfation Abs/.1mm *ASTM D7415 >30 16.4 17.0 16.6 | | 1 | <1 | <1 | | ASTM D5185m | ppm | Sodium |
| Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.1 6.0 5.2 Sulfation Abs/.1mm *ASTM D7415 >30 16.4 17.0 16.6 | | 5 | 7 | 8 | >20 | ASTM D5185m | ppm | Potassium |
| Nitration Abs/cm *ASTM D7624 >20 5.1 6.0 5.2 Sulfation Abs/.1mm *ASTM D7415 >30 16.4 17.0 16.6 | history2 | histo | history1 | current | limit/base | method | | INFRA-RED |
| Nitration Abs/cm *ASTM D7624 >20 5.1 6.0 5.2 Sulfation Abs/.1mm *ASTM D7415 >30 16.4 17.0 16.6 | .1 | 0.1 | 0.1 | 0.1 | >3 | *ASTM D7844 | % | Soot % |
| Sulfation Abs/.1mm *ASTM D7415 >30 16.4 17.0 16.6 | .2 | 5.2 | 6.0 | | >20 | | Abs/cm | Nitration |
| | | 16.6 | | | | | | |
| FLUID DEGRADATION method limit/base current history1 his | history2 | histo | history1 | current | limit/base | method | ATION | FLUID DEGRAD |
| Oxidation Abs/.1mm *ASTM D7414 >25 11.8 12.5 12.0 | 2.0 | 12.0 | 12.5 | 11.8 | >25 | *ASTM D7414 | Abs/.1mm | Oxidation |
| Base Number (BN) mg KOH/g ASTM D2896 9.8 8.1 7.7 7.8 | .8 | 7.8 | 7.7 | | 9.8 | ASTM D2896 | mg KOH/g | Base Number (BN) |



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 | 15.4 | 12.8 | 12.6 | 12.6 |
| GRAPHS | | | | | | |

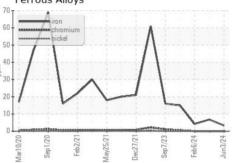
Ferrous Alloys

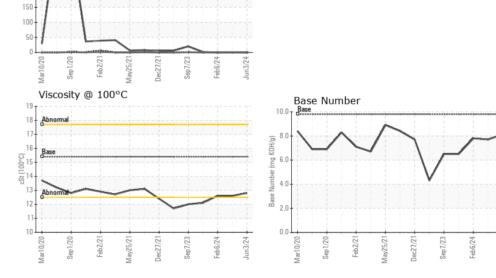
Non-ferrous Metals

ead

400

350





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 009 - Fairburn Sample No. : 05 Jun 2024 : GFL0116774 Received 6905 Roosevelt Hwy Lab Number : 06199842 Tested : 05 Jun 2024 Fairburn, GA US 30213 Unique Number : 11061965 Diagnosed : 05 Jun 2024 - Wes Davis Test Package : FLEET Contact: Eric Jones Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. erjones@gflenv.com T: (678)630-9927 * - 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) E:

Report Id: GFL009 [WUSCAR] 06199842 (Generated: 06/05/2024 16:41:27) Rev: 1

Submitted By: Eric Jones Page 2 of 2

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