

OIL ANALYSIS REPORT



Machine Id **333146** Component **Diesel Engine** Fluid **PETRO CANADA DURON SHP 10W30 (--- QTS)**

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

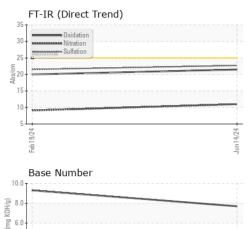
Fluid Condition

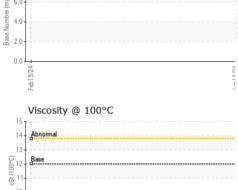
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| SAMPLE INFOR | MATION | method | limit/base | current | history1 | history2 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Sample Number | | Client Info | | PCA0128925 | PCA0118909 | |
| Sample Date | | Client Info | | 14 Jun 2024 | 19 Feb 2024 | |
| Machine Age | mls | Client Info | | 15332 | 8136 | |
| Oil Age | mls | Client Info | | 0 | 0 | |
| Oil Changed | | Client Info | | Not Changd | Not Changd | |
| Sample Status | | | | NORMAL | NORMAL | |
| CONTAMINAT | ION | method | limit/base | current | history1 | history2 |
| Fuel | | WC Method | >5 | <1.0 | <1.0 | |
| Water | | WC Method | >0.2 | NEG | NEG | |
| Glycol | | WC Method | | NEG | NEG | |
| WEAR METAL | S | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >100 | 86 | 74 | |
| Chromium | ppm | ASTM D5185m | >20 | 2 | 1 | |
| Nickel | ppm | ASTM D5185m | >4 | <1 | <1 | |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | |
| Aluminum | ppm | ASTM D5185m | >20 | 14 | 10 | |
| Lead | ppm | ASTM D5185m | >40 | 0 | <1 | |
| Copper | ppm | ASTM D5185m | >330 | 26 | 26 | |
| Tin | ppm | ASTM D5185m | >15 | 3 | 2 | |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | |
| | | | | | | |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| ADDITIVES Boron | ppm | method ASTM D5185m | limit/base 2 | current 29 | history1 48 | history2 |
| | ppm ppm | | | | | |
| Boron | | ASTM D5185m | 2 | 29 | 48 | |
| Boron Barium | ppm | ASTM D5185m ASTM D5185m | 2 0 50 | 29 0 | 48 0 | |
| Boron Barium Molybdenum | ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 | 29 0 61 | 48 0 60 | |
| Boron Barium Molybdenum Manganese | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 0 | 29 0 61 12 | 48 0 60 11 | |
| Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 0 950 | 29 0 61 12 736 | 48 0 60 11 606 | |
| 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 | 29 0 61 12 736 1752 | 48 0 60 11 606 1603 | |
| 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 | 29 0 61 12 736 1752 1002 | 48 0 60 11 606 1603 856 | |
| 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 0 950 1050 995 1180 | 29 0 61 12 736 1752 1002 1196 | 48 0 60 11 606 1603 856 1015 | |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur | 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 0 950 1050 995 1180 2600 | 29 0 61 12 736 1752 1002 1196 3193 | 48 0 60 11 606 1603 856 1015 2637 | |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN | 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 0 950 1050 995 1180 2600 | 29 0 61 12 736 1752 1002 1196 3193 current | 48 0 60 11 606 1603 856 1015 2637 history1 | history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method | 2 0 50 0 950 1050 995 1180 2600 limit/base >25 | 29 0 61 12 736 1752 1002 1196 3193 current 39 | 48 0 60 11 606 1603 856 1015 2637 history1 13 | history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium | 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 | 2 0 50 0 950 1050 995 1180 2600 limit/base >25 | 29 0 61 12 736 1752 1002 1196 3193 current 39 7 | 48 0 60 11 606 1603 856 1015 2637 history1 13 2 | history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium | ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | 2 0 50 950 1050 995 1180 2600 limit/base >25 >20 | 29 0 61 12 736 1752 1002 1196 3193 <u>current</u> 39 7 24 | 48 0 60 11 606 1603 856 1015 2637 history1 13 2 15 | history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED | ppm ppm ppm ppm ppm ppm ppm ppm ppm TS | ASTM D5185m ASTM D5185m | 2 0 50 0 950 1050 995 1180 2600 Imit/base >25 >20 Imit/base | 29 0 61 12 736 1752 1002 1196 3193 <i>current</i> 39 7 24 <i>current</i> | 48 0 60 11 606 1603 856 1015 2637 history1 13 2 15 history1 | history2 history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % | 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 >25 >20 limit/base >3 | 29 0 61 12 736 1752 1002 1196 3193 <i>current</i> 39 7 24 <i>current</i> 0.5 | 48 0 60 11 606 1603 856 1015 2637 history1 13 2 15 history1 0.3 | history2 history2 history2 |
| 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 ppm ppm | ASTM D5185m ASTM D5185m | 2 0 50 950 1050 995 1180 2600 <i>imit/base</i> >25 >20 <i>imit/base</i> >3 >20 | 29 0 61 12 736 1752 1002 1196 3193 <i>current</i> 39 7 24 <i>current</i> 0.5 11.0 | 48 0 60 11 606 1603 856 1015 2637 history1 13 2 15 history1 0.3 9.1 | history2 history2 |
| 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 ppm ppm | ASTM D5185m ASTM D5185m | 2 0 0 50 0 950 1050 995 1180 2600 2600 25 20 220 20 20 20 20 20 20 20 20 20 20 20 | 29 0 61 12 736 1752 1002 1196 3193 <i>current</i> 39 7 24 <i>current</i> 0.5 11.0 22.7 | 48 0 60 11 606 1603 856 1015 2637 history1 13 2 15 history1 0.3 9.1 21.5 | history2 history2 history2 |
| 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 ppm ppm | ASTM D5185m ASTM D7844 *ASTM D7624 | 2 0 0 50 0 950 1050 995 1180 2600 2600 25 20 220 20 20 20 20 20 20 20 20 20 20 20 | 29 0 61 12 736 1752 1002 1196 3193 <i>current</i> 39 7 24 <i>current</i> 0.5 11.0 22.7 <i>current</i> | 48 0 60 11 606 1603 856 1015 2637 history1 13 2 15 history1 0.3 9.1 21.5 history1 | history2 history2 history2 history2 |



OIL ANALYSIS REPORT





| VISUAL | | method | limit/base | current | history1 | history2 |
|-------------------------------|--------|--------------|-----------------------------------------|---------------|---------------|--------------|
| White Metal | scalar | *Visual | NONE | NONE | NONE | |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | |
| Precipitate | scalar | *Visual | NONE | NONE | NONE | |
| Silt | scalar | *Visual | NONE | NONE | NONE | |
| Debris | scalar | *Visual | NONE | NONE | NONE | |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | |
| Appearance | scalar | *Visual | NORML | NORML | NORML | |
| Odor | scalar | *Visual | NORML | NORML | NORML | |
| Emulsified Water | scalar | *Visual | >0.2 | NEG | NEG | |
| Free Water | scalar | *Visual | | NEG | NEG | |
| FLUID PROPE | RTIES | method | limit/base | current | history1 | history2 |
| Visc @ 100°C | cSt | ASTM D445 | 12.00 | 10.0 | 9.7 | |
| GRAPHS | | | | | | |
| Iron (ppm) | | | | Lead (ppm) | | |
| 250 | | | 100 | Severe | | |
| 200 4 | | | 80 | - 0 | | |
| Abnormal | | | 60 E | Abnormal | | |
| 50 | | | 40 | 1 4 | | |
| 0 | | | 0 | | | |
| | | | | 9/24 | | 4/24 - |
| Feb19/24 | | | Jun14/24 | Feb19/24 | | Jun14/24 |
| Aluminum (ppm) | | | | Chromium (p | pm) | |
| 50 Severe | | | 50 | Severe | | |
| 40 + 0 | | | 40 | - 0 | | |
| E 30 20 - Abnormal | | | 20 | Abnormal | | |
| | | | | + 0 | | - |
| 10 | | | 10 | | | |
| Feb19/24 | | | | Feb19/24 - | | Jun14/24 - |
| Feb1 | | | Jun14/24 | Feb1 | | Jun1 |
| Copper (ppm) | | | | Silicon (ppm) | | |
| 400 Severe | | | 80 | Severe | | 1 |
| 300 | | | 60 | | | |
| 툍 200 - | | | 틆.40 | | | |
| 100 - | | | 20 | Abnormal | | 1 |
| 0 | | | 0 | | | |
| Feb 19/24 - | | | Jun14/24 . | Feb19/24 - | | Jun14/24 - |
| Feb | | | Jun1 | Feb1 | | Junl |
| Viscosity @ 100°C Base Number | | | | | | |
| 16 | | | (^B /HO 8.0 | | | |
| 14 Abnormal | | | 9 0.0 E 6.0 | | | |
| (5-001) 12 153 | | | 10.0 ag 4.0 | | | |
| 310 Abnormal | | | 8.0 6.0 9.8 Wrumper 4.0 2.0 | | | |
| 8 | | | 0.0 | L | | |
| Feb 19/24 | | | Jun 14/24 | Feb 19/24 | | Jun14/24 |
| 習 | | | nnc | Fet | | ημ |
| | | | | | | |
| : WearCheck USA - 50 | | | | М | ILLER TRUCK I | |
| : PCA0128925 | Recei | | Jun 2024 | | | |
| : 06216628 | Teste | u :24 | Jun 2024 | | HASBROUCK | (HEIGHTS, NJ |



Feb19/24

Lab Number Unique Number : 11089492 Diagnosed : 24 Jun 2024 - Sean Felton Test Package : MOB 1 (Additional Tests: TBN) Contact: MIKE LONGETTE Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. mlongette@millertransgroup.com * - 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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