

OIL ANALYSIS REPORT

Sample Rating Trend



FLEET Machine Id 2220619 (S/N CSPHC85012)

Component **1 Diesel Engine** Fluid

PETRO CANADA 10W30 (16 QTS)

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.

| SAMPLE INFORMA | TION | method | limit/base | current | history1 | history2 |
|--|--|--|---|---|---|--|
| Sample Number | | Client Info | | PCA0116246 | PCA0100712 | PCA0090108 |
| Sample Date | | Client Info | | 26 Feb 2024 | 16 Jun 2023 | 11 Jan 2023 |
| Machine Age hi | irs | Client Info | | 2550 | 2550 | 1574 |
| Oil Age hr | Irs | Client Info | | 2550 | 200 | 1114 |
| Oil Changed | | Client Info | | N/A | Changed | N/A |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| CONTAMINATIO | N | method | limit/base | current | history1 | history2 |
| Fuel | | WC Method | >2.1 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.21 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| WEAR METALS | | method | limit/base | current | history1 | history2 |
| Iron pi | pm | ASTM D5185m | >51 | 8 | 8 | 7 |
| | | ASTM D5185m | >11 | <1 | <1 | <1 |
| | pm | ASTM D5185m | >5 | <1 | 0 | <1 |
| | | ASTM D5185m | | <1 | 0 | 0 |
| Silver pr | pm | ASTM D5185m | >3 | 0 | 0 | 0 |
| Aluminum pr | pm | ASTM D5185m | >31 | 1 | <1 | 2 |
| Lead pr | pm | ASTM D5185m | >26 | 2 | 2 | 1 |
| Copper pr | pm | ASTM D5185m | >26 | 1 | <1 | <1 |
| Tin p | pm | ASTM D5185m | >4 | <1 | <1 | <1 |
| Vanadium pr | pm | ASTM D5185m | | <1 | 0 | 0 |
| Cadmium pr | pm | ASTM D5185m | | <1 | 0 | 0 |
| ADDITIVES | | | 11 11 11 | | | |
| ABBIIIVE0 | | method | limit/base | current | history1 | history2 |
| _ | pm | ASTM D5185m | limit/base | current 7 | history1 2 | history2 15 |
| Boron pr | 1- | | limit/base | | | |
| Boron pr Barium pr | 1- | ASTM D5185m | limit/base | 7 | 2 | 15 |
| Boron pr Barium pr Molybdenum pr | pm pm | ASTM D5185m ASTM D5185m | limit/base | 7 1 | 2 2 | 15 4 |
| Boron pr Barium pr Molybdenum pr Manganese pr | pm pm | ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 7 1 56 | 2 2 61 | 15 4 60 |
| Boron pr Barium pr Molybdenum pr Manganese pr Magnesium pr | opm opm opm opm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 7 1 56 <1 | 2 2 61 <1 | 15 4 60 <1 |
| Boron pr Barium pr Molybdenum pr Manganese pr Magnesium pr Calcium pr | opm opm opm opm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limi/base | 7 1 56 <1 816 | 2 2 61 <1 897 | 15 4 60 <1 820 |
| Boron pr Barium pr Molybdenum pr Manganese pr Magnesium pr Calcium pr Phosphorus pr | opm opm opm opm opm opm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | IImi/base | 7 1 56 <1 816 963 | 2 2 61 <1 897 1078 | 15 4 60 <1 820 1002 |
| Boron pr Barium pr Molybdenum pr Manganese pr Magnesium pr Calcium pr Phosphorus pr Zinc pr | opm opm opm opm opm opm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | | 7 1 56 <1 816 963 952 | 2 2 61 <1 897 1078 1037 | 15 4 60 <1 820 1002 900 |
| Boron pr Barium pr Molybdenum pr Manganese pr Magnesium pr Calcium pr Phosphorus pr Zinc pr | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 7 1 56 <1 816 963 952 1101 | 2 2 61 <1 897 1078 1037 1211 | 15 4 60 <1 820 1002 900 1116 |
| BoronppBariumppMolybdenumppMagnesiumppCalciumppPhosphorusppZincppSulfurppCONTAMINANTS | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 7 1 56 <1 816 963 952 1101 3185 | 2 2 61 <1 897 1078 1037 1211 3171 | 15 4 60 <1 820 1002 900 1116 3196 |
| BoronprBariumprMolybdenumprMagnesiumprMagnesiumprCalciumprPhosphorusprZincprSulfurprCONTAMINANTSSiliconpr | 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 | limit/base | 7 1 56 <1 816 963 952 1101 3185 current | 2 2 61 <1 897 1078 1037 1211 3171 history1 | 15 4 60 <1 820 1002 900 1116 3196 history2 |
| Boron pr Barium pr Molybdenum pr Manganese pr Magnesium pr Calcium pr Phosphorus pr Zinc pr Sulfur pr CONTAMINANTS Silicon pr Sodium pr | 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 | limit/base | 7 1 56 <1 816 963 952 1101 3185 current 3 | 2 2 61 <1 897 1078 1037 1211 3171 history1 2 | 15 4 60 <1 820 1002 900 1116 3196 history2 2 |
| Boron pr Barium pr Molybdenum pr Manganese pr Magnesium pr Calcium pr Phosphorus pr Zinc pr Sulfur pr CONTAMINANTS Silicon pr Sodium pr | ppm ppm ppm ppm ppm ppm ppm ppm S | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 7 1 56 <1 816 963 952 1101 3185 current 3 <1 | 2 2 61 <1 897 1078 1037 1211 3171 history1 2 0 | 15 4 60 <1 820 1002 900 1116 3196 history2 2 < |
| BoronprBariumprMolybdenumprManganeseprMagnesiumprCalciumprPhosphorusprZincprSulfurprCONTAMINANTprSodiumprPotassiumpr | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | limit/base >22 >20 | 7 1 56 <1 816 963 952 1101 3185 <u>current</u> 3 <1 2 | 2 2 61 <1 897 1078 1037 1211 3171 history1 2 0 <1 | 15 4 60 <1 820 1002 900 1116 3196 history2 2 2 <1 <1 |
| BoronprBariumprMolybdenumprManganeseprMagnesiumprCalciumprCalciumprZincprSulfurprCONTAMINANTSprSodiumprPotassiumprINFRA-REDprSoot %pr | ppm ppm ppm ppm ppm ppm ppm ppm sppm sp | ASTM D5185m ASTM D5185m | limit/base >22 >20 limit/base | 7 1 56 <1 816 963 952 1101 3185 <u>current</u> 3 <1 2 <u>current</u> | 2 2 61 <1 897 1078 1037 1211 3171 history1 2 0 <1 history1 | 15 4 60 <1 820 1002 900 1116 3196 history2 2 <1 <1 <1 |
| BoronprBariumprMolybdenumprManganeseprMagnesiumprCalciumprPhosphorusprZincprSulfurprCONTAMINANTprSodiumprPotassiumprINFRA-REDprSoot %prNitrationpr | ppm ppm ppm ppm ppm ppm ppm ppm sppm sp | ASTM D5185m ASTM D5185m | limit/base >22 >20 limit/base >3 | 7 1 56 <1 816 963 952 1101 3185 current 3 <1 2 current 0.2 | 2 2 61 <1 897 1078 1037 1211 3171 history1 2 0 <1 history1 0.3 | 15 4 60 <1 820 1002 900 1116 3196 history2 2 2 <1 <1 <1 <1 history2 0.2 |
| BoronprBariumprMolybdenumprManganeseprMagnesiumprCalciumprPhosphorusprZincprSulfurprCONTAMINANTprSodiumprPotassiumprINFRA-REDprSoot %prNitrationpr | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | limit/base >22 >20 limit/base >3 >20 | 7 1 56 <1 816 963 952 1101 3185 current 3 <1 2 current 0.2 5.2 | 2 2 61 <1 897 1078 1037 1211 3171 history1 2 0 <1 history1 0.3 5.4 | 15 4 60 <1 820 1002 900 1116 3196 history2 2 2 <1 <1 <1 history2 0.2 5.2 |
| BoronprBariumprMolybdenumprManganeseprMagnesiumprCalciumprPhosphorusprZincprSulfurprSoliconprSodiumprPotassiumprSoot %%NitrationAbSulfationAb | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | limit/base >22 >20 limit/base >3 >20 >3 >20 >30 | 7 1 56 <1 816 963 952 1101 3185 current 3 <1 2 current 0.2 5.2 17.6 | 2 2 61 <1 897 1078 1037 1211 3171 history1 2 0 <1 history1 0.3 5.4 17.9 | 15 4 60 <1 820 1002 900 1116 3196 history2 2 <1 <1 <1 history2 0.2 5.2 17.2 |



Jul11/22

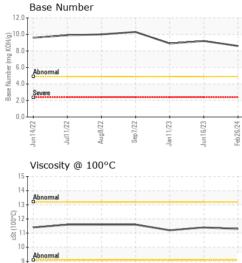
Jun14/22

Ē

Aug8/22

OIL ANALYSIS REPORT

VISUAL



| Laboratory Sample No. Lab Number Unique Number Test Package To discuss this sample report, | | : 10899612 : FLEET | | | | Rece Teste | ived | : 2 [.] : 2 | : 27 Feb 2024 : 28 Feb 2024 : 28 Feb 2024 - Wes Davis | | | | | PERDUE FARMS - DILLON 2047 HWY 9 WEST DILLON, SC US 29536 Contact: KEVIN HOOKS kevin.hooks@perdue.com T: (843)841-8069 | | | | |
|---|------------|-----------------------|---|--------------------|-----------------------|-------------------------|------------------|-------------------------|---|----------|-----------------------------------|----------|--------------|--|----------------|-----------|--------------|----------|
| | | | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | 77/I IInc | Aug8/22 | Sep7/22 | Jan11/23 | Jun16/23 | Feb26/24 | 2.0· 0.0· | Jun14/22 | Jul11/22 + | Aug8/22 | Sep 7/22 | Jan 11/23 | Jun16/23 | Feb26/24 |
| | | | 10- | Abnormal | | | | | | | admun 4.0 | Abnom | nal | | | | | |
| | | | 13 - 12 - 12 - 12 - 12 - 12 - 12 - 12 - | Abnormal | | | | | | | Base Number (mg KOH/g) 0.8 0.0 | | | | | | | - |
| | | | 15 14 | | y @ It | JU-C | | | | | 12.0 | | Numb | er | | | | |
| | | | 14/27 | /iscosit | | Aug8/22 | Sep 7/22 | Jan11/23 | Jun16/23 | Feb26/24 | | | | | | | | |
| | | | 4 | | | | | | | | | | | | | | | |
| | | | 12 - 10 - | **** | copper lead tin | | | | | | | | | | | | | |
| | | | | lon-fer | rous M | | | Jan | Juni | Febá | | | | | | | | |
| | | | 4 2 0 0 0 0 0 0 0 0 0 | 27) 27) | | Aug8/22 | Sep7/22 | Jan11/23 | Jun16/23 | Feb26/24 | | | | | | | | |
| Sep7/22 Jan11/23 | Jun 16/23 | Ech 36 | 10- 8- Ed 6- | | nickel | / | | - | - | | | | | | | | | |
| Sep7/22 | 6/23 | VC a | 14 T | | Alloys | 1 | | | | | | | | | | | | |
| | | | | sc @ 10 GRAP | | | cSt | ASTM | D445 | | | 11. | 3 | | 11.4 | | 11.2 | |
| | | | | | | PER | RTIES | | | limit/ | base | | urrent | | histor | y1 | histor | ry2 |
| °C | | | | nulsifie ee Wat | | er | scalar scalar | *Visu *Visu | al | >0.21 | | NE NE | G | | NEG NEG | | NEG NEG | |
| Sep7/22 - | Jun16/23 | Feb26/24 - | Ap Od | pearan Ior | nce | | scalar scalar | *Visu *Visu | al | NORN | ΛL | NO | RML | | NORML NORML | | NORM NORM | IL |
| | | De | ebris Ind/Dirt | | | scalar scalar | *Visu *Visu | al | NONE | | NO NO | NE | | NONE | | NONE | | |
| | Pre Sil | ecipitat t | e | | scalar scalar | *Visu *Visu *Visu | al | NONE | | NO NO | NE | | NONE NONE | | NONE NONE | | | |
| | | | | | | | scalar | | | | | | NE | | | | | |