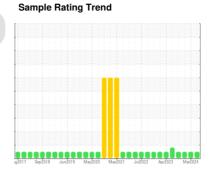


OIL ANALYSIS REPORT



Area [1293260] 4704 Component **Diesel Engine**

PETRO CANADA DURON SHP 15W40 (40 LTR)





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

Fluid Condition

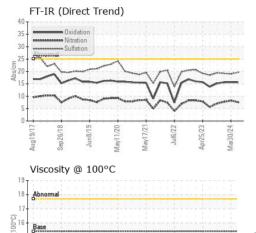
The condition of the oil is acceptable for the time in service.

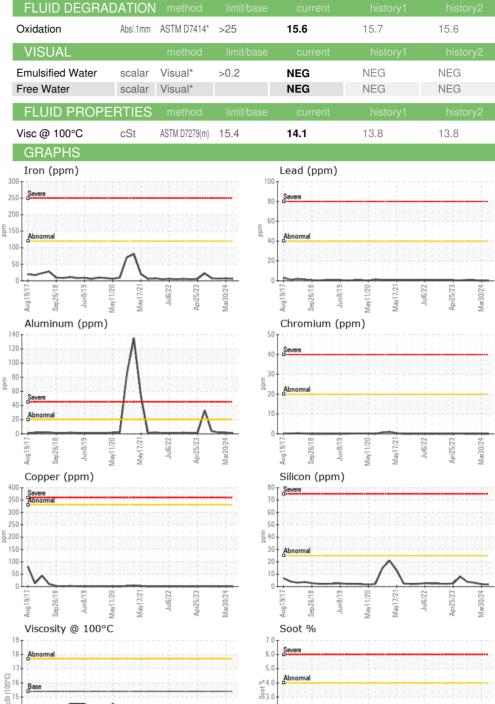
| Sample Date | SAMPLE INFOR | RMATION | method | limit/base | current | history1 | history2 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------|---------------|------------|-------------|-------------|-------------|
| Machine Age hrs Client Info 21131 20527 19954 Dil Age hrs Client Info 600 0 0 Dil Changed N/A Changed N/A Changed N/A NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method imit/base current history1 history2 Fuel WC Method >3.0 <1.0 <1.0 <1.0 <1.0 Mater WC Method >0.2 NEG NEG NEG NEG All All All All All All All All All Al | Sample Number | | Client Info | | GFL0118553 | GFL0110679 | GFL0102695 |
| Dil Age | Sample Date | | Client Info | | 11 Jun 2024 | 30 Mar 2024 | 19 Dec 2023 |
| Client Info Changed NORMAL NORMAL NORMAL NORMAL NORMAL | Machine Age | hrs | Client Info | | 21131 | 20527 | 19954 |
| CONTAMINATION method imilibase current history1 history2 | Oil Age | hrs | Client Info | | 600 | 0 | 0 |
| CONTAMINATION | Oil Changed | | Client Info | | Changed | N/A | Changed |
| Tuel | Sample Status | | | | NORMAL | NORMAL | NORMAL |
| Water WC Method 20.2 NEG N | CONTAMINAT | ΓΙΟΝ | method | limit/base | current | history1 | history2 |
| WEAR METALS | Fuel | | WC Method | >3.0 | <1.0 | <1.0 | <1.0 |
| WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185(m) >120 6 7 6 Chromium ppm ASTM D5185(m) >20 0 0 0 Vickel ppm ASTM D5185(m) >15 0 0 0 Silver ppm ASTM D5185(m) >2 0 0 0 Aluminum ppm ASTM D5185(m) >20 <1 2 2 Lead ppm ASTM D5185(m) >20 <1 0 <1 Capper ppm ASTM D5185(m) >20 <1 <1 <1 Capper ppm ASTM D5185(m) >15 0 0 <1 Capper ppm ASTM D5185(m) 0 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 < | Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Chromium | Glycol | | WC Method | | NEG | NEG | NEG |
| Chromium ppm ASTM D5185(m) >20 0 0 0 0 0 | WEAR METAL | _S | method | limit/base | current | history1 | history2 |
| Strickel | Iron | ppm | ASTM D5185(m) | >120 | 6 | 7 | 6 |
| Description | Chromium | ppm | ASTM D5185(m) | >20 | 0 | 0 | 0 |
| Silver | Nickel | ppm | ASTM D5185(m) | >15 | 0 | 0 | <1 |
| Aluminum | Titanium | ppm | ASTM D5185(m) | >2 | 0 | 0 | 0 |
| Lead | Silver | ppm | ASTM D5185(m) | >3 | 0 | 0 | 0 |
| Copper | Aluminum | ppm | ASTM D5185(m) | >20 | <1 | 2 | 2 |
| Antimony | Lead | ppm | ASTM D5185(m) | >40 | <1 | 0 | <1 |
| Antimony | Copper | ppm | ASTM D5185(m) | >330 | <1 | <1 | <1 |
| Vanadium ppm ASTM D5185(m) 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 0 2 4 1 Barium ppm ASTM D5185(m) 0 0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0 0 Manganese ppm ASTM D5185(m) 0 0 0 0 Magnesium ppm ASTM D5185(m) 1010 953 976 965 Calcium ppm ASTM D5185(m) 1070 1034 1045 1065 Phosphorus ppm ASTM D5185(m) 1270 1176 1192 1181 Sulfur ppm ASTM D5185(m) >260 2392 2473 | Tin | ppm | ASTM D5185(m) | >15 | 0 | 0 | <1 |
| Description | Antimony | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Description | Vanadium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| ADDITIVES | Beryllium | | | | 0 | 0 | 0 |
| Soron ppm ASTM D5185(m) 0 2 4 1 | Cadmium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Sarium | ADDITIVES | | method | limit/base | current | history1 | history2 |
| Molybdenum ppm ASTM D5185(m) 60 58 59 58 Manganese ppm ASTM D5185(m) 0 0 0 0 Magnesium ppm ASTM D5185(m) 1010 953 976 965 Calcium ppm ASTM D5185(m) 1070 1034 1045 1065 Phosphorus ppm ASTM D5185(m) 1270 1176 1192 1181 Zinc ppm ASTM D5185(m) 2060 2392 2473 2635 Lithium ppm ASTM D5185(m) 2060 2392 2473 2635 Lithium ppm ASTM D5185(m) >25 2 2 3 Solicon ppm ASTM D5185(m) >25 2 2 3 Sodium ppm ASTM D5185(m) >20 <1 | Boron | ppm | ASTM D5185(m) | 0 | 2 | 4 | 1 |
| Manganese ppm ASTM D5185(m) 0 0 0 0 Magnesium ppm ASTM D5185(m) 1010 953 976 965 Calcium ppm ASTM D5185(m) 1070 1034 1045 1065 Phosphorus ppm ASTM D5185(m) 1150 967 985 1008 Zinc ppm ASTM D5185(m) 1270 1176 1192 1181 Sulfur ppm ASTM D5185(m) 2060 2392 2473 2635 Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 2 2 3 Sodium ppm ASTM D5185(m) >20 <1 1 <1 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7624* | Barium | ppm | ASTM D5185(m) | 0 | 0 | 0 | 0 |
| Magnesium ppm ASTM D5185(m) 1010 953 976 965 Calcium ppm ASTM D5185(m) 1070 1034 1045 1065 Phosphorus ppm ASTM D5185(m) 1150 967 985 1008 Zinc ppm ASTM D5185(m) 1270 1176 1192 1181 Sulfur ppm ASTM D5185(m) 2060 2392 2473 2635 Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 2 2 3 Sodium ppm ASTM D5185(m) >20 <1 1 <1 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >4 0.3 0.2 0.2 Nitration Abs/cm ASTM D7624*< | Molybdenum | ppm | ASTM D5185(m) | 60 | 58 | 59 | 58 |
| Calcium ppm ASTM D5185(m) 1070 1034 1045 1065 Phosphorus ppm ASTM D5185(m) 1150 967 985 1008 Zinc ppm ASTM D5185(m) 1270 1176 1192 1181 Sulfur ppm ASTM D5185(m) 2060 2392 2473 2635 Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 2 2 3 Sodium ppm ASTM D5185(m) >20 <1 1 <1 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >4 0.3 0.2 0.2 Nitration Abs/cm ASTM D7624* >20 7.6 8.2 7.7 | Manganese | ppm | ASTM D5185(m) | 0 | 0 | 0 | 0 |
| Phosphorus ppm ASTM D5185(m) 1150 967 985 1008 Zinc ppm ASTM D5185(m) 1270 1176 1192 1181 Sulfur ppm ASTM D5185(m) 2060 2392 2473 2635 Lithium ppm ASTM D5185(m) <1 | Magnesium | ppm | ASTM D5185(m) | 1010 | 953 | 976 | 965 |
| Zinc ppm ASTM D5185(m) 1270 1176 1192 1181 | Calcium | ppm | ASTM D5185(m) | 1070 | 1034 | 1045 | 1065 |
| Sulfur ppm ASTM D5185(m) 2060 2392 2473 2635 Lithium ppm ASTM D5185(m) 2060 2392 2473 2635 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 2 2 3 Sodium ppm ASTM D5185(m) 3 3 3 Potassium ppm ASTM D5185(m) >20 <1 | Phosphorus | ppm | ASTM D5185(m) | 1150 | 967 | 985 | 1008 |
| Lithium ppm ASTM D5185(m) <1 | Zinc | ppm | ASTM D5185(m) | 1270 | 1176 | 1192 | 1181 |
| Lithium ppm ASTM D5185(m) <1 | Sulfur | ppm | ASTM D5185(m) | 2060 | 2392 | 2473 | 2635 |
| Silicon ppm ASTM D5185(m) >25 2 2 3 | Lithium | | ASTM D5185(m) | | <1 | <1 | <1 |
| Sodium ppm ASTM D5185(m) 3 3 3 Potassium ppm ASTM D5185(m) >20 <1 1 <1 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >4 0.3 0.2 0.2 Nitration Abs/cm ASTM D7624* >20 7.6 8.2 7.7 | CONTAMINAN | NTS | method | limit/base | current | history1 | history2 |
| Potassium ppm ASTM D5185(m) >20 <1 | Silicon | ppm | ASTM D5185(m) | >25 | 2 | 2 | 3 |
| INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >4 0.3 0.2 0.2 Nitration Abs/cm ASTM D7624* >20 7.6 8.2 7.7 | Sodium | ppm | ASTM D5185(m) | | 3 | 3 | 3 |
| Soot % % ASTM D7844* >4 0.3 0.2 0.2 Nitration Abs/cm ASTM D7624* >20 7.6 8.2 7.7 | Potassium | ppm | ASTM D5185(m) | >20 | <1 | 1 | <1 |
| Nitration Abs/cm ASTM D7624* >20 7.6 8.2 7.7 | INFRA-RED | | method | limit/base | current | history1 | history2 |
| | Soot % | % | ASTM D7844* | >4 | 0.3 | 0.2 | 0.2 |
| Sulfation Abs/.1mm ASTM D7415* >30 19.6 19.0 19.2 | Nitration | Abs/cm | ASTM D7624* | >20 | 7.6 | 8.2 | 7.7 |
| | Sulfation | Abs/.1mm | ASTM D7415* | >30 | 19.6 | 19.0 | 19.2 |



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OIL ANALYSIS REPORT





2.0 1.0

0.0



CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number : 02641926 Unique Number : 5799465 Test Package : MOB 1

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9

12

: GFL0118553

To discuss this sample report, contact Customer Service at 1-800-268-2131.

Diagnosed

Received : 14 Jun 2024 **Tested** : 14 Jun 2024

: 14 Jun 2024 - Wes Davis

GFL Environmental - 207 - Pickering SW

1034 TOY AVENUE, PICKERING YARD PICKERING, ON

CA L1W 3P1 Contact: Ian Patton ipatton@gflenv.com T: (905)831-6297

F: (905)426-3577

Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.