

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id 122034

Component **Diesel Engine**

PETRO CANADA DURON XL SYN BLEND 15W40 (--- GAL)

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 oil.

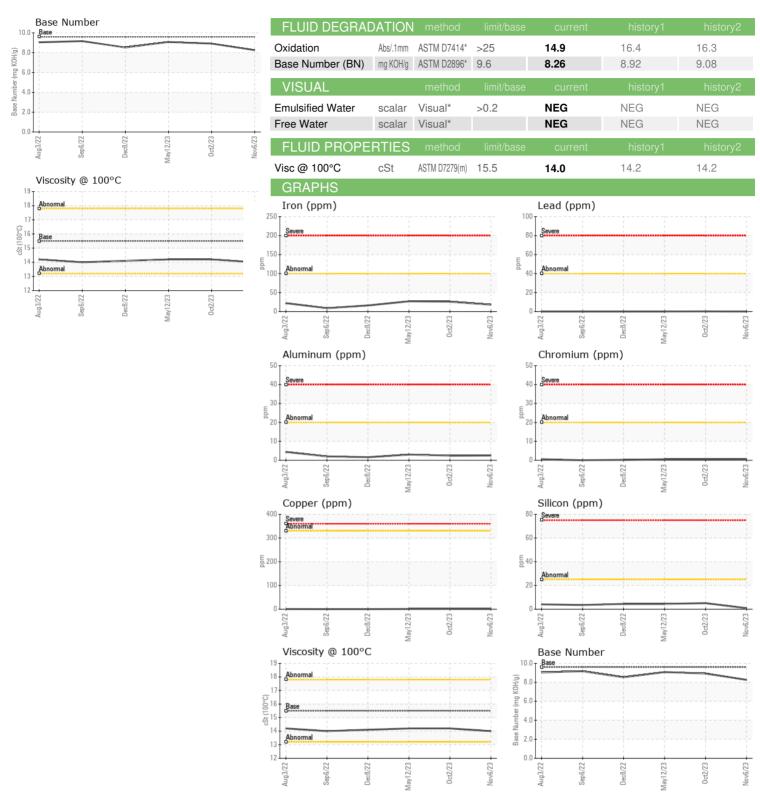
Fluid Condition

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

| Sample Date Client Info 06 Nov 2023 02 Oct 2023 12 May 2023 Machine Age hrs Client Info 0 950446 Oil Age hrs Client Info 0 104874 950446 Oil Changed Client Info Changed Changed | I5W40 (GAL) | 1 | Aug2022 | Sep2022 Dec2022 | 2 May2023 Oct2023 | Nov2023 | |
|--|---------------|----------|---------------|-----------------|-------------------|-------------|-------------|
| Client Info 06 Nov 2023 02 Oct 2023 12 May 2023 Machine Age hrs Client Info 3995 0 950446 Oil Age hrs Client Info 0 104874 950446 Oil Changed Client Info Changed Ch | SAMPLE INFOF | RMATION | method | limit/base | current | history1 | history2 |
| Sample Date Client Info 06 Nov 2023 02 Oct 2023 12 May 2023 Machine Age hrs Client Info 0 104874 950446 Oil Age hrs Client Info 0 104874 950446 Oil Age hrs Client Info 0 104874 950446 Oil Changed Changed Changed Changed Changed Changed Changed NORMAL NOR | Sample Number | | Client Info | | GFL0091591 | GFL0091641 | GFL0077623 |
| Machine Age hrs Client Info 3995 0 950446 Oil Age hrs Client Info 0 104874 950446 Oil Changed | | | Client Info | | 06 Nov 2023 | 02 Oct 2023 | 12 May 2023 |
| Client Info Changed Changed Changed NORMAL NORMAL NORMAL NORMAL | Machine Age | hrs | | | 3995 | 0 | |
| CONTAMINATION | Oil Age | hrs | Client Info | | 0 | 104874 | 950446 |
| CONTAMINATION | Oil Changed | | Client Info | | Changed | Changed | Changed |
| Fuel | Sample Status | | | | NORMAL | NORMAL | NORMAL |
| WEAR METALS | CONTAMINAT | TION | method | limit/base | current | history1 | history2 |
| WEAR METALS | Fuel | | WC Method | >5 | <1.0 | <1.0 | <1.0 |
| Irron | Glycol | | WC Method | | NEG | NEG | NEG |
| Chromium | WEAR METAL | _S | method | limit/base | current | history1 | history2 |
| Nickel | Iron | ppm | ASTM D5185(m) | >100 | 18 | 26 | 27 |
| Description | Chromium | ppm | ASTM D5185(m) | >20 | <1 | <1 | <1 |
| Silver | Nickel | ppm | | | <1 | 0 | <1 |
| Silver | Titanium | ppm | ASTM D5185(m) | | 0 | 0 | <1 |
| Lead | Silver | ppm | ASTM D5185(m) | >3 | <1 | <1 | 0 |
| Copper ppm ASTM D5185(m) >330 <1 <1 <1 Tin ppm ASTM D5185(m) >15 0 0 <1 | Aluminum | ppm | ASTM D5185(m) | >20 | 2 | 2 | 3 |
| Tin | Lead | ppm | ASTM D5185(m) | >40 | 0 | <1 | 0 |
| 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) 1 4 4 4 Barium ppm ASTM D5185(m) 1 0 <1 0 Molybdenum ppm ASTM D5185(m) 1 0 <1 0 Manganese ppm ASTM D5185(m) 1 0 0 <1 Magnesium ppm ASTM D5185(m) 1010 934 984 949 Calcium ppm ASTM D5185(m) 1070 1024 1089 1155 Phosphorus ppm ASTM D5185(m) 1270 1146 1224 1184 Sulfur ppm ASTM D5185(m) 2060 2357 2370 < | Tin | ppm | ASTM D5185(m) | >15 | 0 | 0 | <1 |
| Beryllium | Antimony | ppm | ASTM D5185(m) | | 0 | <1 | 0 |
| Cadmium ppm ASTM D5185(m) 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 1 4 4 4 Barium ppm ASTM D5185(m) 1 0 <1 | Vanadium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| ADDITIVES | Beryllium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Boron | Cadmium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Barium | ADDITIVES | | method | limit/base | current | history1 | history2 |
| Molybdenum ppm ASTM D5185(m) 60 57 61 57 Manganese ppm ASTM D5185(m) 1 0 0 <1 Magnesium ppm ASTM D5185(m) 1010 934 984 949 Calcium ppm ASTM D5185(m) 1070 1024 1089 1155 Phosphorus ppm ASTM D5185(m) 1150 958 986 1042 Zinc ppm ASTM D5185(m) 1270 1146 1224 1184 Sulfur ppm ASTM D5185(m) 2060 2357 2370 2451 Lithium ppm ASTM D5185(m) <1 <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 <1 5 4 Sodium ppm ASTM D5185(m) >20 2 2 4 INFRA-RED method | Boron | ppm | ASTM D5185(m) | 1 | 4 | 4 | 4 |
| Manganese ppm ASTM D5185(m) 1 0 0 <1 Magnesium ppm ASTM D5185(m) 1010 934 984 949 Calcium ppm ASTM D5185(m) 1070 1024 1089 1155 Phosphorus ppm ASTM D5185(m) 1150 958 986 1042 Zinc ppm ASTM D5185(m) 1270 1146 1224 1184 Sulfur ppm ASTM D5185(m) 2060 2357 2370 2451 Lithium ppm ASTM D5185(m) <1 | Barium | ppm | ASTM D5185(m) | 1 | 0 | <1 | 0 |
| Magnesium ppm ASTM D5185(m) 1010 934 984 949 Calcium ppm ASTM D5185(m) 1070 1024 1089 1155 Phosphorus ppm ASTM D5185(m) 1150 958 986 1042 Zinc ppm ASTM D5185(m) 1270 1146 1224 1184 Sulfur ppm ASTM D5185(m) 2060 2357 2370 2451 Lithium ppm ASTM D5185(m) <1 | Molybdenum | ppm | ASTM D5185(m) | 60 | 57 | 61 | 57 |
| Calcium ppm ASTM D5185(m) 1070 1024 1089 1155 Phosphorus ppm ASTM D5185(m) 1150 958 986 1042 Zinc ppm ASTM D5185(m) 1270 1146 1224 1184 Sulfur ppm ASTM D5185(m) 2060 2357 2370 2451 Lithium ppm ASTM D5185(m) <1 | Manganese | ppm | ASTM D5185(m) | 1 | 0 | 0 | <1 |
| Phosphorus ppm ASTM D5185(m) 1150 958 986 1042 Zinc ppm ASTM D5185(m) 1270 1146 1224 1184 Sulfur ppm ASTM D5185(m) 2060 2357 2370 2451 Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 <1 5 4 Sodium ppm ASTM D5185(m) >20 2 2 4 Potassium ppm ASTM D5185(m) >20 2 2 4 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0 0 0 Nitration Abs/cm ASTM D7624* >20 6.1 7.4 7.6 | Magnesium | ppm | ASTM D5185(m) | 1010 | 934 | 984 | 949 |
| Zinc | Calcium | ppm | ASTM D5185(m) | 1070 | 1024 | 1089 | 1155 |
| Sulfur ppm ASTM D5185(m) 2060 2357 2370 2451 Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 <1 | Phosphorus | ppm | ASTM D5185(m) | 1150 | 958 | 986 | 1042 |
| Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 <1 | Zinc | ppm | ASTM D5185(m) | 1270 | 1146 | 1224 | 1184 |
| CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 <1 | Sulfur | ppm | ASTM D5185(m) | 2060 | 2357 | 2370 | 2451 |
| Silicon ppm ASTM D5185(m) >25 <1 5 4 Sodium ppm ASTM D5185(m) 3 6 4 Potassium ppm ASTM D5185(m) >20 2 2 4 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0 0 0 Nitration Abs/cm ASTM D7624* >20 6.1 7.4 7.6 | Lithium | ppm | ASTM D5185(m) | | <1 | <1 | <1 |
| Sodium ppm ASTM D5185(m) 3 6 4 Potassium ppm ASTM D5185(m) >20 2 2 4 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0 0 0 Nitration Abs/cm ASTM D7624* >20 6.1 7.4 7.6 | CONTAMINAN | NTS | method | limit/base | current | history1 | history2 |
| Potassium ppm ASTM D5185(m) >20 2 2 4 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0 0 0 Nitration Abs/cm ASTM D7624* >20 6.1 7.4 7.6 | Silicon | ppm | ASTM D5185(m) | >25 | <1 | 5 | 4 |
| INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0 0 0 Nitration Abs/cm ASTM D7624* >20 6.1 7.4 7.6 | Sodium | ppm | ASTM D5185(m) | | 3 | 6 | 4 |
| Soot % % ASTM D7844* >3 0 0 0 Nitration Abs/cm ASTM D7624* >20 6.1 7.4 7.6 | Potassium | ppm | ASTM D5185(m) | >20 | 2 | 2 | 4 |
| Nitration Abs/cm ASTM D7624* >20 6.1 7.4 7.6 | INFRA-RED | | method | limit/base | current | history1 | history2 |
| Nitration Abs/cm ASTM D7624* >20 6.1 7.4 7.6 | Soot % | % | ASTM D7844* | >3 | 0 | 0 | 0 |
| | Nitration | Abs/cm | ASTM D7624* | >20 | | 7.4 | 7.6 |
| | Sulfation | Abs/.1mm | ASTM D7415* | >30 | 19.2 | 19.6 | 19.6 |



OIL ANALYSIS REPORT





CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number Unique Number

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 550 - Rocky View County : GFL0091591 : 02596486

: 5681566 Test Package : MOB 2

Received : 15 Nov 2023 Diagnosed Diagnostician

: 16 Nov 2023 : Wes Davis

220 Carmek Blvd Rocky View County, AB **CA T1X 1X1**

Contact: GFL Calgary calgarymaintenance@gflenv.com

Submitted By: GFL Calgary

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

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