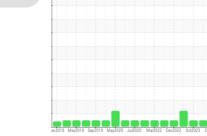


OIL ANALYSIS REPORT

SAMPLE INFORMATION method

Sample Rating Trend







Machine Id 728058-361020 Component Diesel Engine

Fluid

PETRO CANADA DURON SHP 15W40 (8 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.

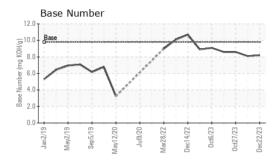
Fluid Condition

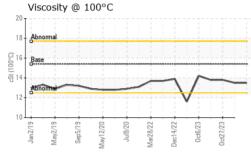
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| Sample Number Client Info 22 Dec 202 24 Nov 2023 27 Oct 2023 Machine Age hrs Client Info 13728 13564 150 Oil Age hrs Client Info 600 150 150 Oil Age hrs Client Info 600 150 Not Changd Sample Status Northangd Not Changd Not Changd Not Changd CONTAMINATION method Jon 410 Northangd Northangd Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Vetar MSTM 05185 >100 8 4 Chromium ppm ASTM 05185 >20 <1 <1 <1 Nickel ppm ASTM 05185 >3 0 0 0 Silver ppm ASTM 05185 >3 0 <1 <1 Nickel ppm ASTM 05 | | | method | limit/base | current | history1 | history2 |
|---|---|---|--|---|---|---|---|
| Machine Age hrs Client Info 13728 13564 150 Oil Age hrs Client Info 600 150 Not Changd Sample Status NorRMAL NorRMAL NorRMAL NorRMAL CONTAMINATION method Imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Giycol WC Method >0.2 NEG NEG NEG Chromium ppm ASTM 05185m >20 <1 <1 <1 Nickel ppm ASTM 05185m >20 <1 <1 <1 Nickel ppm ASTM 05185m >20 2 <1 3 Lead ppm ASTM 05185m >20 2 <1 3 Lead ppm ASTM 05185m >30 0 <1 <1 Norreits ASTM 05185m <th>Sample Number</th> <th></th> <th>Client Info</th> <th></th> <th>GFL0098767</th> <th>GFL0098750</th> <th>GFL0065487</th> | Sample Number | | Client Info | | GFL0098767 | GFL0098750 | GFL0065487 |
| Machine Age hrs Client Info 13728 13564 150 Oil Age hrs Client Info 600 150 Not Changd Sample Status Imit/base Not Changd Not Changd Not Changd CONTAMINATION method Imit/base current History1 History2 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 Chromium ppm ASTM 05185m >20 <1 <1 <1 Nickel ppm ASTM 05185m >20 <1 <1 <1 <1 Nickel ppm ASTM 05185m >20 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 1 <1< | Sample Date | | Client Info | | 22 Dec 2023 | 24 Nov 2023 | 27 Oct 2023 |
| Oil Age hrs Client Info 600 150 150 Oil Changed Client Info Changed Not Changd Not Changd Sample Status Imitod Imitibase current history1 Not Changd CONTAMINATION method Imitibase current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0 NEG NEG NEG Wear WC Method >0 <1 <1 <1 Nickel ppm ASTM D5185m >100 8 8 4 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >3 0 0 <1 <1 Silver ppm ASTM D5185m >40 0 <1 <1 <1 Lead ppm ASTM D5185m >15 0 <1 <1 <1 | | hrs | | | | | |
| Oil Changed Sample Status Client Info Changed NORMAL Not Changd NORMAL Not Changd NORMAL Not Changd NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <10 | • | | | | | | |
| Sample Status NORMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method imil/base current history1 history2 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 Water WC Method >0.2 NEG NEG NEG Wethod WC Method >0.2 NEG NEG NEG Wethod ppm ASTM D5185m >100 8 8 4 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 2 <1 3 Lead ppm ASTM D5185m >20 2 <1 3 Lead ppm ASTM D5185m >30 <1 <1 <1 Vanadium ppm | U U | 1110 | | | | | |
| CONTAMINATION method imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imit/base current history1 history2 Iron ppm ASTM D5185m >100 8 8 4 Chromium ppm ASTM D5185m >100 8 8 4 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 2 <1 3 Lead ppm ASTM D5185m >20 2 <1 1 <1 Tin ppm ASTM D5185m >30 <1 1 <1 Vanadium ppm ASTM D5185m >10 <1 <1 Vanadium ppm ASTM D5185m 0 <1 <1 V | - | | | | • | | |
| Fuel WC Method >5 <1.0 | | | | | NOTIMAL | | NOTIVIAL |
| Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 8 8 4 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 2 <1 <1 <1 Silver ppm ASTM D5185m >20 2 <1 3 Lead ppm ASTM D5185m >20 2 <1 3 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 1 1 1 | CONTAMINATI | ON | method | limit/base | current | history1 | history2 |
| Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 <1 <1 <1 Silver ppm ASTM D5185m >20 2 <1 3 Lead ppm ASTM D5185m >20 2 <1 3 Lead ppm ASTM D5185m >20 2 <1 3 Lead ppm ASTM D5185m >15 0 <1 <1 Vanadium ppm ASTM D5185m 0 0 <1 <1 Cadmium ppm ASTM D5185m 0 0 <1 <1 Managinesin ppm ASTM D5185m 0 0 <1 <1 | Fuel | | WC Method | >5 | | | |
| WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 8 8 4 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 <1 <1 <1 Titanium ppm ASTM D5185m >3 0 <1 <1 Silver ppm ASTM D5185m >20 2 <1 3 Lead ppm ASTM D5185m >20 2 <1 0 Copper ppm ASTM D5185m >20 2 <1 3 Lead ppm ASTM D5185m >20 2 <1 3 Lead ppm ASTM D5185m >15 0 <1 1 Vanadium ppm ASTM D5185m 0 0 <1 <1 Maddium ppm ASTM D5185m 0 0 <1 | Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Iron ppm ASTM D5185m >100 8 8 4 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >4 0 <1 <1 Titanium ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 2 <1 3 Lead ppm ASTM D5185m >20 2 <1 3 Lead ppm ASTM D5185m >30 <1 1 <1 <1 Tin ppm ASTM D5185m >15 0 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 <1 <1 <1 Cadmium ppm ASTM D5185m 0 0 <1 <1 Mangaese ppm ASTM D5185m 0 0 <1 0 Molydedenum ppm ASTM D5185m | Glycol | | WC Method | | NEG | NEG | NEG |
| Chromium ppm ASTM D5185m >20 <1 | WEAR METALS | S | method | limit/base | current | history1 | history2 |
| Nickel ppm ASTM D5185m >4 0 <1 | Iron | ppm | ASTM D5185m | >100 | 8 | 8 | 4 |
| Titanium ppm ASTM D5185m 0 <1 | Chromium | ppm | ASTM D5185m | >20 | <1 | <1 | <1 |
| Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 2 <1 | Nickel | ppm | ASTM D5185m | >4 | 0 | <1 | <1 |
| Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 2 <1 3 Lead ppm ASTM D5185m >40 0 <1 0 Copper ppm ASTM D5185m >330 <1 1 <1 Tin ppm ASTM D5185m >15 0 <1 <1 Vanadium ppm ASTM D5185m >15 0 <1 <1 Cadmium ppm ASTM D5185m 0 0 <1 <1 Cadmium ppm ASTM D5185m 0 0 <1 <1 Boron ppm ASTM D5185m 0 0 <1 <1 Molybdenum ppm ASTM D5185m 0 0 <1 10 Maganese ppm ASTM D5185m 1010 914 933 1213 Calcium ppm ASTM D5185m 1070 1026 1 | Titanium | ppm | ASTM D5185m | | 0 | <1 | <1 |
| Lead ppm ASTM D5185m >40 0 <1 | Silver | ppm | ASTM D5185m | >3 | 0 | 0 | 0 |
| Lead ppm ASTM D5185m >40 0 <1 | Aluminum | | ASTM D5185m | >20 | 2 | <1 | 3 |
| Copper ppm ASTM D5185m >330 <1 | Lead | ppm | ASTM D5185m | >40 | 0 | <1 | 0 |
| Tin ppm ASTM D5185m >15 0 <1 | Copper | | ASTM D5185m | >330 | <1 | 1 | <1 |
| Vanadium ppm ASTM D5185m 0 <1 | •• | | ASTM D5185m | >15 | 0 | <1 | <1 |
| Cadmium ppm ASTM D5185m 0 <1 | Vanadium | | ASTM D5185m | | | 0 | <1 |
| Boron ppm ASTM D5185m 0 0 <1 | Cadmium | | ASTM D5185m | | 0 | <1 | <1 |
| Barium ppm ASTM D5185m 0 0 <1 | | | | | | | |
| Molybdenum ppm ASTM D5185m 60 58 59 77 Manganese ppm ASTM D5185m 0 0 <1 | ADDITIVES | | method | limit/base | current | history1 | history2 |
| Maganese ppm ASTM D5185m 0 0 <1 | | ppm | | | | | |
| Magnesium ppm ASTM D5185m 1010 914 933 1213 Calcium ppm ASTM D5185m 1070 1026 1040 1259 Phosphorus ppm ASTM D5185m 1170 967 982 1313 Zinc ppm ASTM D5185m 1270 1200 1197 1596 Sulfur ppm ASTM D5185m 2060 3127 3215 4642 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 6 3 Sodium ppm ASTM D5185m >20 2 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.2 Nitration Abs/.mm *ASTM D7624 >20 7.6 7.8 5.4 Sulfation Abs/.mm *ASTM D741 | Boron | | ASTM D5185m | 0 | 0 | <1 | <1 |
| Calcum ppm ASTM D5185m 1070 1026 1040 1259 Phosphorus ppm ASTM D5185m 1150 967 982 1313 Zinc ppm ASTM D5185m 1270 1200 1197 1596 Sulfur ppm ASTM D5185m 2060 3127 3215 4642 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 6 3 Sodium ppm ASTM D5185m >20 2 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 2 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 7.6 7.8 5.4 Sulfation Abs/.inm *ASTM D7415 >3 | Boron Barium | ppm | ASTM D5185m ASTM D5185m | 0 | 0 0 | <1 <1 | <1 <1 |
| Phosphorus ppm ASTM D5185m 1150 967 982 1313 Zinc ppm ASTM D5185m 1270 1200 1197 1596 Sulfur ppm ASTM D5185m 2060 3127 3215 4642 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 6 3 Sodium ppm ASTM D5185m >25 4 6 3 Sodium ppm ASTM D5185m >20 2 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 7.6 7.8 5.4 Sulfation Abs/cm *ASTM D7444 >3 0.4 0.4 0.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 | Boron Barium Molybdenum | ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 | 0 0 58 | <1 <1 59 | <1 <1 77 |
| Zinc ppm ASTM D5185m 1270 1200 1197 1596 Sulfur ppm ASTM D5185m 2060 3127 3215 4642 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 6 3 Sodium ppm ASTM D5185m >25 4 6 3 Sodium ppm ASTM D5185m >25 4 6 3 Sodium ppm ASTM D5185m >20 2 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 7.6 7.8 5.4 Sulfation Abs/cm *ASTM D7414 >30 19.5 19.3 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 <td< th=""><th>Boron Barium Molybdenum Manganese</th><th>ppm ppm ppm</th><th>ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m</th><th>0 0 60 0</th><th>0 0 58 0</th><th><1 <1 59 <1</th><th><1 <1 77 0</th></td<> | Boron Barium Molybdenum Manganese | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 0 | 0 0 58 0 | <1 <1 59 <1 | <1 <1 77 0 |
| Zinc ppm ASTM D5185m 1270 1200 1197 1596 Sulfur ppm ASTM D5185m 2060 3127 3215 4642 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 6 3 Sodium ppm ASTM D5185m >25 4 6 3 Sodium ppm ASTM D5185m >25 4 6 3 Potassium ppm ASTM D5185m >20 2 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 7.6 7.8 5.4 Sulfation Abs/cm *ASTM D7414 >30 19.5 19.3 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 | Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 0 1010 | 0 0 58 0 914 | <1 <1 59 <1 933 | <1 <1 77 0 1213 |
| CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25463SodiumppmASTM D5185m136PotassiumppmASTM D5185m>20222INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.40.40.2NitrationAbs/cm*ASTM D7624>207.67.85.4SulfationAbs/.tmm*ASTM D7415>3019.519.318.1FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.tmm*ASTM D7414>2515.015.113.8 | Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 0 1010 1070 | 0 0 58 0 914 1026 | <1 <1 59 <1 933 1040 | <1 <1 77 0 1213 1259 |
| Silicon ppm ASTM D5185m >25 4 6 3 Sodium ppm ASTM D5185m 1 3 6 Potassium ppm ASTM D5185m >20 2 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.2 Nitration Abs/cm *ASTM D7624 >20 7.6 7.8 5.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.1 13.8 | 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 | 0 0 60 0 1010 1070 1150 | 0 0 58 0 914 1026 967 | <1 <1 59 <1 933 1040 982 | <1 <1 77 0 1213 1259 1313 |
| Sodium ppm ASTM D5185m 1 3 6 Potassium ppm ASTM D5185m >20 2 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.2 Nitration Abs/cm *ASTM D7624 >20 7.6 7.8 5.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.1 13.8 | Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 0 1010 1070 1150 1270 | 0 0 58 0 914 1026 967 1200 | <1 <1 59 <1 933 1040 982 1197 | <1 <1 77 0 1213 1259 1313 1596 |
| Sodium ppm ASTM D5185m 1 3 6 Potassium ppm ASTM D5185m >20 2 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.2 Nitration Abs/cm *ASTM D7624 >20 7.6 7.8 5.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.1 13.8 | 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 | 0 0 60 0 1010 1070 1150 1270 2060 | 0 0 58 0 914 1026 967 1200 3127 | <1 <1 59 <1 933 1040 982 1197 3215 | <1 <1 77 0 1213 1259 1313 1596 4642 |
| INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.2 Nitration Abs/cm *ASTM D7624 >20 7.6 7.8 5.4 Sulfation Abs/.imm *ASTM D7415 >30 19.5 19.3 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.imm *ASTM D7414 >25 15.0 15.1 13.8 | 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 | 0 0 60 0 1010 1070 1150 1270 2060 | 0 0 58 0 914 1026 967 1200 3127 current | <1 <1 59 <1 933 1040 982 1197 3215 history1 | <1 <1 77 0 1213 1259 1313 1596 4642 history2 |
| Soot % % *ASTM D7844 >3 0.4 0.4 0.2 Nitration Abs/cm *ASTM D7624 >20 7.6 7.8 5.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.1 13.8 | Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon | ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 0 1010 1070 1150 1270 2060 | 0 0 58 0 914 1026 967 1200 3127 current 4 | <1 <1 59 <1 933 1040 982 1197 3215 history1 6 | <1 <1 77 0 1213 1259 1313 1596 4642 history2 3 |
| Nitration Abs/cm *ASTM D7624 >20 7.6 7.8 5.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.1 13.8 | Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium | ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 kimit/base >25 | 0 0 58 0 914 1026 967 1200 3127 current 4 1 | <1 <1 59 <1 933 1040 982 1197 3215 history1 6 3 | <1 <1 77 0 1213 1259 1313 1596 4642 history2 3 6 |
| Nitration Abs/cm *ASTM D7624 >20 7.6 7.8 5.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.1 13.8 | Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium | ppm | ASTM D5185m ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 | 0 0 58 0 914 1026 967 1200 3127 current 4 1 2 | <1 <1 59 <1 933 1040 982 1197 3215 history1 6 3 2 | <1 <1 77 0 1213 1259 1313 1596 4642 history2 3 6 2 |
| Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.1 13.8 | Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 2060 225 >25 | 0 0 58 0 914 1026 967 1200 3127 current 4 1 2 2 | <1 <1 59 <1 933 1040 982 1197 3215 history1 6 3 2 history1 | <1 <1 77 0 1213 1259 1313 1596 4642 history2 3 6 2 history2 |
| FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.1 13.8 | Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % | ppm | ASTM D5185m ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20 | 0 0 58 0 914 1026 967 1200 3127 current 4 1 2 current 0.4 | <1 <1 59 <1 933 1040 982 1197 3215 history1 6 3 2 history1 0.4 | <1 <1 77 0 1213 1259 1313 1596 4642 history2 3 6 2 2 history2 0.2 |
| Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.1 13.8 | Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Solicon Sodium Potassium INFRA-RED Soot % Nitration | ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20 | 0 0 58 0 914 1026 967 1200 3127 <i>current</i> 4 1 2 <i>current</i> 0.4 7.6 | <1 <1 59 <1 933 1040 982 1197 3215 history1 6 3 2 history1 0.4 7.8 | <1 <1 77 0 1213 1259 1313 1596 4642 history2 3 6 2 history2 0.2 5.4 |
| | 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 TS ppm ppm ppm ppm spm ppm ppm | ASTM D5185m ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 320 33 20 20 20 | 0 0 58 0 914 1026 967 1200 3127 <u>current</u> 4 1 2 2 <u>current</u> 0.4 7.6 19.5 | <1 <1 59 <1 933 1040 982 1197 3215 history1 6 3 2 2 history1 0.4 7.8 19.3 | <1 <1 77 0 1213 1259 1313 1596 4642 history2 3 6 2 2 history2 0.2 5.4 18.1 |
| Dase Multiper (BN) mg KUHig ASTM U2040 9.8 8.2 8.1 8.6 | Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD | ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844 | 0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20 | 0 0 58 0 914 1026 967 1200 3127 current 4 1 2 current 0.4 7.6 19.5 current | <1 <1 59 <1 933 1040 982 1197 3215 history1 6 3 2 history1 0.4 7.8 19.3 history1 | <1 <1 77 0 1213 1259 1313 1596 4642 history2 3 6 2 history2 0.2 5.4 18.1 history2 |
| | Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAC | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414 | 0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20 30 imit/base | 0 0 58 0 914 1026 967 1200 3127 current 4 1 2 current 0.4 7.6 19.5 current 15.0 | <1 <1 59 <1 933 1040 982 1197 3215 history1 6 3 2 history1 0.4 7.8 19.3 history1 15.1 | <1 <1 77 0 1213 1259 1313 1596 4642 history2 3 6 2 0.2 5.4 18.1 history2 13.8 |

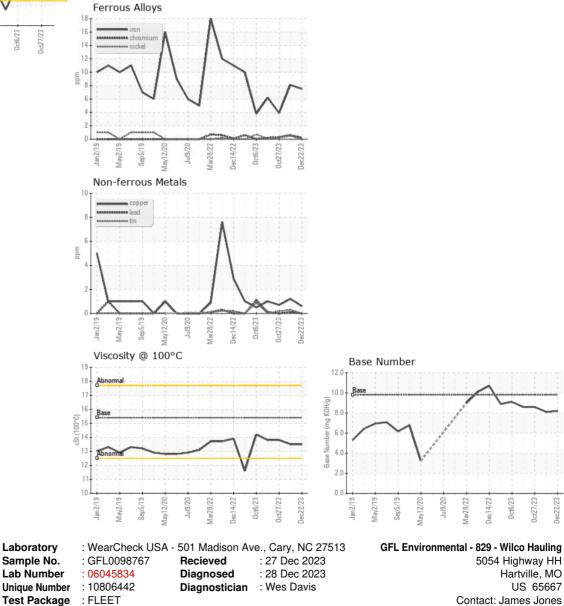


OIL ANALYSIS REPORT





| 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 | 13.5 | 13.5 | 13.8 |
| GRAPHS | | | | | | |



Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. * - 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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