

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Component Natural Gas Compression Engine Fluid

PETRO CANADA SENTRON LD 3000 (--- LTR)

| | | | 023 Jun2023 Jul2023 Jul2 | is suggers appered and | 1602024 | |
|---------------|--------|---------------|--------------------------|------------------------|-------------|-------------|
| SAMPLE INFOF | RMATIO | N method | limit/base | current | history1 | history2 |
| Sample Number | | Client Info | | PC0085503 | PC0085488 | PC9000050 |
| Sample Date | | Client Info | | 16 Feb 2024 | 17 Jan 2024 | 25 Oct 2023 |
| Machine Age | hrs | Client Info | | 7307 | 6606 | 4648 |
| Oil Age | hrs | Client Info | | 0 | 0 | |
| Oil Changed | | Client Info | | Not Changd | Not Changd | Not Changd |
| Sample Status | | | | NORMAL | NORMAL | SEVERE |
| CONTAMINA | ΓΙΟΝ | method | limit/base | current | history1 | history2 |
| Fuel | | WC Method | >4.0 | <1.0 | <1.0 | <1.0 |
| Glycol | | WC Method | | NEG | NEG | NEG |
| WEAR METAI | LS | method | limit/base | current | history1 | history2 |
| PQ | | ASTM D8184* | >20 | 0 | 0 | |
| Iron | ppm | ASTM D5185(m) | >14 | 1 | 1 | 5 |
| Chromium | ppm | ASTM D5185(m) | >3 | 0 | 0 | 0 |
| Nickel | ppm | ASTM D5185(m) | >5 | 0 | <1 | 0 |
| Titanium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | >5 | <1 | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >5 | 1 | 1 | 1 |
| Lead | ppm | ASTM D5185(m) | >8 | 2 | 2 | 1 8 |
| Copper | ppm | ASTM D5185(m) | >5 | <1 | <1 | 2 |
| Tin | ppm | ASTM D5185(m) | >3 | 0 | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| 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) | 5 | 1 | 1 | 4 |
| Barium | ppm | ASTM D5185(m) | 1 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 2 | <1 | <1 | 1 |
| Manganese | ppm | ASTM D5185(m) | 1 | 0 | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | 5 | 7 | 7 | 8 |
| Calcium | ppm | ASTM D5185(m) | 1220 | 1292 | 1272 | 1323 |
| Phosphorus | ppm | ASTM D5185(m) | 298 | 269 | 270 | 292 |
| Zinc | ppm | ASTM D5185(m) | 350 | 316 | 312 | 345 |
| Sulfur | ppm | ASTM D5185(m) | 1995 | 2146 | 2186 | |
| Lithium | ppm | ASTM D5185(m) | | <1 | <1 | 0 |
| CONTAMINA | NTS | method | limit/base | current | history1 | history2 |
| Silicon | ppm | ASTM D5185(m) | >180 | <1 | <1 | 2 |
| Sodium | ppm | ASTM D5185(m) | >20 | <1 | <1 | 1 |
| Potassium | ppm | ASTM D5185(m) | >20 | <1 | 1 | 0 |
| Water | % | ASTM D6304* | >0.1 | 0.011 | 0.004 | |
| ppm Water | ppm | ASTM D6304* | >1000 | 119 | 49 | |

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

The water content is negligible. There is no indication of any contamination in the oil.

Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



Water (KF)

Sev 2000 E 1500 Mater 1000

Abnorma

Viscosity @ 40°C

Jul11/23

2500

500 0 7/24 Jan 1

160 150 Severe 140 Abnormal

()- 130 ts 120 Base Abnormal

Apr24/23 8/23 Jun16/23

Abnormal

Viscosity @ 40°C

Jul11/23 -

Jun16/23

10 5 0. 7/24 Jan 1

160 150 Sev 140 Abnormal

() 0€ 130 Base హ్టే 120

> 110 Sever 100 90 Apr24/23

Abnormal

Mav18/23

PQ 35 30 25 년²⁰

Abnorma

10

n 7/24

Mav1

OIL ANALYSIS REPORT

| | | INFRA-RED | | method | limit/base | current | history1 | history2 |
|--|--|----------------------|---|---|---|---|--|---|
| | | Soot % | % | ASTM D7844* | | 0 | 0 | |
| | | Nitration | | ASTM D7624* | >15 | 4.1 | 3.8 | 5.8 |
| | | Nitration(Diff) | | ASTM E2412* | | 4.6 | 3.4 | |
| | | Sulfation | Abs/.1mm | ASTM D7415* | >25 | 15.9 | 15.4 | 19.9 |
| | | Sulfation(Diff) | | ASTM E2412* | | 5.4 | 3.6 | |
| | 24 | FLUID DEGRAD | ATION | method | limit/base | current | history1 | history2 |
| | Feb16/24 | Oxidation | Abs/.1mm | ASTM D7414* | >20 | 9.3 | 8.6 | 15.8 |
| _ | | Oxidation(Diff) | Abs/cm | ASTM E2412* | | 6.1 | 4.2 | |
| C | | Acid Number (AN) | mg KOH/g | ASTM D974* | 0.86 | 0.60 | 0.20 | 2.9 |
| | | 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 | |
| 23 | 24 | Debris | scalar | Visual* | NONE | NONE | NONE | |
| Jul20/23 Aug18/23 Sep11/23 Oct25/23 | Jan 17/24 Feb 16/24 | Sand/Dirt | scalar | Visual* | NONE | NONE | NONE | |
| | , _ | Appearance | scalar | Visual* | NORML | NORML | NORML | |
| | | Odor | scalar | Visual* | NORML | NORML | NORML | |
| | | Emulsified Water | scalar | Visual* | >0.1 | NEG | NEG | |
| | | Free Water | scalar | Visual* | | NEG | NEG | |
| | | FLUID PROPE | RTIES | method | limit/base | current | history1 | history2 |
| | | Visc @ 40°C | cSt | ASTM D7279(m) | 124.3 | 119 | 119 | 122 |
| | | Visc @ 100°C | cSt | ASTM D7279(m) | 13.7 | 13.2 | 13.2 | 13.11 |
| | | Viscosity Index (VI) | Scale | ASTM D2270* | 106 | 105 | 105 | 101 |
| | /9 | | | | | | | |
| | Feb16/24 | GRAPHS | | | | | | |
| C | | Ferrous Alloys | | | 401 520 | Particle Count | | 20 |
| C | | Ferrous Alloys | | | 491,520 | | | 26 24 |
| C | | Ferrous Alloys | | | 122,880 | Severe | | -24 |
| C | | Ferrous Alloys | | | 122,880 30,720 | Savere Abnormal | | +24 +22 |
| C | | Ferrous Alloys | 20/23 (| 11/23 25/23 17/24 | 122,880 30,720 | Severe Abnormal | | +24 +22 |
| C | | Ferrous Alloys | Jui20/23 | Sep11/23 0ct25/23 Jan17/24 | 122,880 30,720 | Severe Abnormal | | +24 +22 |
| C | щd | Ferrous Alloys | 4 | Sep11/23 0ct25/23 Jan17/24 | 122,880 30,720 | Severe Abnormal | | -24 -22 -20 406:1999 -18 60 -18 60 |
| | щ | Ferrous Alloys | 4 | Sep 11/23 0et25/23 Jan17/24 | 122,880 30,720 (m 7,680 42/9 (gr eg es the d 480 | Severe Abnormal | | -24 -22 -20 406:1999 -18 60 -18 60 |
| | щ | Ferrous Alloys | 4 | Sep11/23 0ct25/23 Jan17/24 | 122,880 30,720 FC/91 ac septement 480 480 | Severe Abnormal | | -24 -22 -20 406:1999 -18 60 -18 60 |
| C | 24 24 | Ferrous Alloys | 4 | Sep11/23 0ct25/23 Jan17/24 | 122,880 30,720 (m 7,680 42/9 (gr eg es the d 480 | Severe Abnormal | | +24 +22 |
| | щ | Ferrous Alloys | | $ \land $ | 122,880 30,720 Te 7,680 472/919 91 92 92 94 94 94 90 90 90 90 90 90 90 90 90 90 90 90 90 | Severe Abnormal | | -24 -22 -20 1406: 1999 Cleaniness -16 1999 Cleaniness -14 -12 Code |
| | щ | Ferrous Alloys | 4 | Sep 11/23 Sep 11/23 0ct25/23 Jan 17/24 Jan 17/24 | 122.880 30,720 7,680 7,680 1,920 480 1,920 480 1,920 480 1,920 480 1,920 480 1,920 480 1,920 480 1,920 480 1,920 480 1,920 480 480 480 480 480 480 480 480 480 48 | Severe Abnormal | | -24 -22 ISO 4406: 1999 Cleaniness Code -14 112 Code -12 Code -12 Code -10 -8 |
| | щ | Ferrous Alloys | | $ \land $ | 122,880 30,720 (m 7,680 4729194 92 92 92 93 94 94 94 94 94 94 94 94 94 94 94 94 94 | Abnormal | ίμ 21μ | -24 -22 -20 1406: 1999 Cleaniness -16 1999 Cleaniness -14 -12 Code |
| | Jan17/24 c.a.te.na ppm | Ferrous Alloys | | $ \land $ | 122,880 30,720 (m 7,680 4729194 92 92 92 93 94 94 94 94 94 94 94 94 94 94 94 94 94 | Abnormal | 4μ 21μ | -24 -22 ISO 4406: 1999 Cleaniness Code -14 112 Code -12 Code -12 Code -10 -8 |
| | Jan17/24 c.a.te.na ppm | Ferrous Alloys | | $ \land $ | 122,880 30,720 (m 7,680 4729194 92 92 92 93 94 94 94 94 94 94 94 94 94 94 94 94 94 | Abnormal | μ 21μ | -24 -22 ISO 4406: 1999 Cleaniness Code -14 112 Code -12 Code -12 Code -10 -8 |
| | Jan17/24 c_iterat | Ferrous Alloys | | $ \land $ | 122,880 30,720 (m 7,680 4729194 92 92 92 93 94 94 94 94 94 94 94 94 94 94 94 94 94 | Abnormal | 4μ 21μ | -24 -22 ISO 4406: 1999 Cleaniness Code -14 112 Code -12 Code -12 Code -10 -8 |
| | Jan17/24 c.a.te.na c.a.te.na ppm | Ferrous Alloys | Jul20/23 | Sep11/23 0ct25/23 Jan17/24 | 1122,880 30,720 (iii 7,680 480 1920 1920 1920 1920 1920 1920 1920 192 | Abnormal | | -24 -22 -20 4406:1999 Oleaninness Code -14 -112 Code -10 |
| | Jan17/24 c.a.te.na c.a.te.na ppm | Ferrous Alloys | Jul20/23 | Sep11/23 0ct25/23 Jan17/24 | 1122,880 30,720 (iii 7,680 480 1920 1920 1920 1920 1920 1920 1920 192 | Abnormal | | -24 -22 -20 4406:1999 Oleaninness Code -14 -112 Code -10 |
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| Jui20/23 | Jan 17/24 | Ferrous Alloys | Jui20/23 Jui20/23 | Sep 11/23 - Sep 11/23 - Sep 11/23 - Oct25/23 - Oct25/20 | 122,880 30,720 (m 7,680 480 480 480 120 480 480 120 480 480 120 480 480 480 480 480 480 480 480 480 48 | Severe Abnormal Acid Number | Jul20/23 | -24 -22 -20 4406.1999 OteamIn ress C Ode -14 -14 -12 Ode -10 -8 -38µ 71µ |
| Pung Control of the second sec | mdd +72/[Ime] | Ferrous Alloys | EZ/02/nr EZ/02/nr Appleby Recei | +52/11/des Line, Burlin ved : 23 | 1122,880 30,720 120,120 142,910 192 192 192 192 192 192 192 192 192 192 | Severe Abnormal Acid Number | | 24 -22 -20 4406:1999 Cleanifiness Code -14 -14 -12 Code -14 -14 -12 Code -12 -14 -12 Code -12 -12 -14 -12 Code -12 -12 -12 -12 -12 -12 -12 -12 |
| CALA ISO 17025:2017 | borratory : V mple No. : F o Number : C | Ferrous Alloys | EZ/02/nr EZ/02/nr Appleby Recei Tested | EZ/11das EZ/11das Line, Burlin ved : 23 d : 27 | ti22,880 30,720 tr 1 ad 31,920 480 1,920 480 120 30 120 30 120 30 120 30 120 30 120 30 120 30 120 30 120 30 120 30 120 30 120 30 120 480 30 120 480 30 120 480 30 120 480 480 480 480 480 480 480 480 480 48 | Abnormal Acid Number | | 24 22 20 4406:1999 CleanIntess Code 14 14 12 Code 10 40 12 Code 10 40 12 Code 10 40 12 Code 10 40 12 Code 40 12 Code 40 10 Code 10 Code |
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| EZODIN EZ | borratory : V mple No. : F o Number : 5 th Package : F | Ferrous Alloys | EZ/02/Inf EZ/02/Inf Appleby Recei Tester Diagn sts: FT-I | +22/11/des +22/11/des t Line, Burlin ved : 23 d : 27 R, FT-IR(Diff | 1122,880 30,720 1120,880 1120,990 1120 1120 1120 1120 1120 1120 1120 1 | Abnormal Acid Number | + 22/81 BmW 10500 Gra Contact | 24 -22 -20 -20 -20 -20 -20 -20 -20 |
| EZODOUN EZODOU | borratory : V mple No. : F o Number : 5 th Package : F mple report, co | Ferrous Alloys | EZIODIN EZIODIN Appleby Recei Tester Diagn sts: FT-I ce at 1-8 | EZILLING 4 EZILLI | 1122,880 30,720 1120,880 1120,990 1120 1120 1120 1120 1120 1120 1120 1 | Abnormal Acid Number | + 22/81 BmW 10500 Gra Contact | 24 -22 -20 4406:1999 Cleantiness Code -14 -12 code -12 code -14 -12 code -12 code -10 |
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> Submitted By: Kris Dickmann Page 2 of 2