

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id 429026-1351

Component Diesel Engine Fluid

PETRO CANADA DURON SHP 15W40 (--- GAL)

| N SHP 15W40 (· | GAL) | Jun2022 \$ | ep2022 Dec2022 Mar20 | 23 May2023 Sep2023 Nov2023 | Feb2024 | |
|-------------------------------|----------------------|---------------------------|----------------------|----------------------------|---------------------------------------|-------------|
| SAMPLE INFOF | MATION | method | limit/base | current | history1 | history2 |
| Sample Number | | Client Info | | GFL0094889 | GFL0088308 | GFL0088274 |
| Sample Date | | Client Info | | 08 Feb 2024 | 01 Nov 2023 | 11 Sep 2023 |
| Machine Age | hrs | Client Info | | 9748 | 9493 | 9239 |
| Oil Age | hrs | Client Info | | 257 | 231 | 550 |
| Oil Changed | | Client Info | | Not Changd | Changed | Not Changd |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| CONTAMINA | TION | method | limit/base | current | history1 | history2 |
| Fuel | | WC Method | >3.0 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| WEAR METAI | S | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >200 | 6 | 5 | 12 |
| Chromium | ppm | ASTM D5185m | | <1 | <1 | 1 |
| Nickel | ppm | ASTM D5185m | >3 | <1 | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | | 4 | 3 | 4 |
| Lead | ppm | ASTM D5185m | >10 | 0 | 1 | 0 |
| Copper | ppm | ASTM D5185m | | 1 | 3 | 7 |
| Tin | ppm | ASTM D5185m | >6 | <1 | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | 0 | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| Boron | ppm | | 0 | 6 | 6 | 2 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | 58 | 60 | 60 |
| Manganese | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | 902 | 919 | 923 |
| Calcium | ppm | ASTM D5185m | | 1008 | 1032 | 1058 |
| Phosphorus | ppm | ASTM D5185m | 1150 | 1055 | 979 | 958 |
| Zinc | ppm | ASTM D5185m | 1270 | 1240 | 1269 | 1196 |
| Sulfur | ppm | ASTM D5185m | 2060 | 3153 | 3109 | 3196 |
| CONTAMINAN | | method | limit/base | current | history1 | history2 |
| Silicon | ppm | ASTM D5185m | >50 | 5 | 4 | 5 |
| Sodium | ppm | ASTM D5185m | 00 | 1 | 0 | 3 |
| Potassium | ppm | ASTM D5185m | | 1 | 2 | 2 |
| INFRA-RED | | method | limit/base | | history1 | history2 |
| Soot % | % | *ASTM D7844 | >3 | 0.2 | 0.4 | 0.4 |
| Nitration | Abs/cm | *ASTM D7624 | | 5.4 | 6.1 | 8.0 |
| Sulfation | Abs/.1mm | *ASTM D7415 | | 17.6 | 18.2 | 18.1 |
| | | method | | | history1 | history2 |
| FLUID DEGRA | | | | | , , , , , , , , , , , , , , , , , , , | |
| Oxidation Base Number (BN) | Abs/.1mm mg KOH/g | *ASTM D7414 ASTM D2896 | >25 | 13.0 8.8 | 13.5 8.7 | 13.7 7.7 |

DIAGNOSIS Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Sample only $\ensuremath{\mathsf{)}}$

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

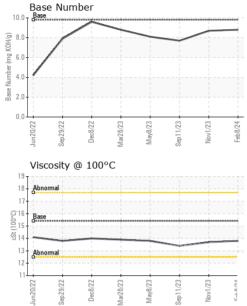
Fluid Condition

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



OIL ANALYSIS REPORT

VISUAL



| White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water Fluid PROPE Visc @ 100°C GRAPHS Ferrous Alloys | cSt EZI80#EW | *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual method ASTM D445 | NONE NONE NONE NONE NORML >0.2 limit/base 15.4 | NONE NONE NONE NONE NOR NOR NOR NOR NEG 20 current 13.8 | NONE NONE NONE NONE NORML NORML NEG NEG 13.7 | NONE NONE NONE NONE NOR NOR NOR NEG history2 13.4 |
|--|--|---|--|---|---|--|
| Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys | scalar scalar scalar scalar scalar scalar scalar scalar scalar | *Visual *Visual *Visual *Visual *Visual *Visual *Visual method ASTM D445 | NONE NONE NONE NORML NORML >0.2 limit/base 15.4 | NONE NONE NONE NORML NORML NEG NEG | NONE NONE NONE NORML NORML NEG NEG history1 | NONE NONE NONE NORML NORML NEG NEG history2 |
| Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys | scalar scalar scalar scalar scalar scalar scalar scalar scalar | *Visual *Visual *Visual *Visual *Visual *Visual Method ASTM D445 | NONE NONE NORML NORML >0.2 limit/base 15.4 | NONE NONE NORML NORML NEG NEG | NONE NONE NORML NORML NEG NEG history1 | NONE NONE NORML NORML NEG NEG history2 |
| Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys | scalar scalar scalar scalar scalar scalar scalar scalar | *Visual *Visual *Visual *Visual *Visual Method ASTM D445 | NONE NORML NORML >0.2 limit/base 15.4 | NONE NORML NORML NEG NEG current | NONE NORML NORML NEG NEG history1 | NONE NORML NORML NEG NEG history2 |
| Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys | scalar scalar scalar scalar scalar scalar scalar scalar | *Visual *Visual *Visual *Visual *Visual Method ASTM D445 | NONE NORML >0.2 limit/base 15.4 | NONE NORML NORML NEG NEG | NONE NORML NORML NEG NEG history1 | NONE NORML NORML NEG NEG history2 |
| Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys | scalar scalar scalar scalar ERTIES cSt | *Visual *Visual *Visual Tethod ASTM D445 | NORML >0.2 limit/base 15.4 | NORML NORML NEG NEG current | NORML NORML NEG NEG history1 | NORML NORML NEG NEG history2 |
| Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys | scalar scalar scalar ERTIES cSt | *Visual *Visual *Visual ASTM D445 | NORML >0.2 limit/base 15.4 | NORML NEG NEG current | NORML NEG NEG history1 | NORML NEG NEG history2 |
| Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys | scalar scalar ERTIES cSt | *Visual *Visual Method ASTM D445 | >0.2 limit/base 15.4 | NEG NEG current | NEG NEG history1 | NEG NEG history2 |
| Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys ⁵⁰ ¹⁰ | scalar ERTIES cSt | *Visual method ASTM D445 | limit/base | NEG current | NEG history1 | NEG history2 |
| FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys | ERTIES cSt cSt | method ASTM D445 | 15.4 | e current | history1 | history2 |
| Visc @ 100°C GRAPHS Ferrous Alloys | cSt EZI80#EW | ASTM D445 | 15.4 | | | |
| GRAPHS Ferrous Alloys | Mar28/23 | | | 13.8 | 13.7 | 13.4 |
| Ferrous Alloys | | Sep11/23 | Feb8/24 | | | |
| Non-ferrous Meta | | Sep 11/23 | Feb8/24 | | | |
| 40 40 40 40 40 40 40 40 40 40 | | Sep11/23 | Feb8/24 | | | |
| Non-ferrous Meta | | Sep11/23 | Feb8/24 | | | |
| Non-ferrous Meta | | Sep 11/23 | Febb/24 | | | |
| Non-ferrous Meta | | Sep 11/23 | Feb8/24 | | | |
| Non-ferrous Meta | | Sep11/23 | Feb8/24 | | | |
| Non-ferrous Meta | | Sep11/23 | Feb8/24 | | | |
| Non-ferrous Meta | | Sep11/23 | Feb8/24 | | | |
| Non-ferrous Meta | | Sep11/23 | Feb8/24 | | | |
| Non-ferrous Meta | | Sep11/7 Nov1/7 | Feb8/ | | | |
| Non-ferrous Meta | | 00 | | | | |
| 25 20 | ais | | | | | |
| 20 | | | | | | |
| 201 | | | | | | |
| | | | | | | |
| 15 | | | | | | |
| | | | | | | |
| 10 | | | | | | |
| 5- | | | | | | |
| | | | | | | |
| | 723 | 723 | 724 | | | |
| Jun 20, Sep 29, Dec 8, | Mar28, May8, | Sep 11, Nov1, | Feb 8 | | | |
| | - | 05 | | | | |
| ¹⁹ T | | | 10 | Base Number | | |
| 18 - Abnormal | | | | | | |
| 17 | | | (B/H | 8.0 | | |
| © ¹⁶ -Base | | | B 6 | 6.0 | | |
| ê ¹⁵ - | | | ber (n | | | |
| ³ 14 | | | [_] [_] [_] [_] [_] [_] | 4.0 | | |
| 13 Abnormal | | | ase 2 | 2.0 | | |
| 12 - | | | | | | |
| 11 22 23 | 23 | 23 | 24 + | | 23 | ep 11/23 |
| un 20/ ep 29/ Dec8/ | flar28/ Vlay8/ | ep 11/ | Feb 8/ | un20/ ep29/ | flar28/ | Sep 11/23 Nov1/23 |
| - 0 | 2 2 | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | 2 - | |
| ry : WearCheck USA - 50 | 01 Madiso | n Ave., Cary | , NC 27513 | GFL Envi | ronmental - 625 - | Harrison Hauli |
| lo. : GFL0094889 | Recei | ived : 13 | 3 Feb 2024 | | 4102 | Industrial Pky |
| ber : 06088044 | | | | | | Harrison, I |
| | Diago | | | | | |
| nber :10875489 age :FLEET | Diagr | nosed : 15 | 0 FED 2024 - DU | on Baldridge | Contact: C | US 4862 Glenda Stande |
| k | ry : WearCheck USA - 5 lo. : GFL0094889 ber : 06088044 | ry : WearCheck USA - 501 Madiso is GFL0094889 rest is 06088044 rest rest rest rest rest rest rest rest | EZIQUERW Viscosity @ 100°C ¹⁹ ¹⁰ | F2/02/04/04 F2/02/04 F2/02/04 F2/02/04 | ry : WearCheck USA - 501 Madison Ave., Cary, NC 27513 is GFL0094889 rested : 13 Feb 2024 Rested : 14 Feb 2 | ry : WearCheck USA - 501 Madison Ave., Cary, NC 27513 is GFL0094889 rested : 13 Feb 2024 Feb 2024 Feb 2024 Feb 2024 Feb 2024 Feb 2024 Feb 2024 Feb 2024 |

Ê