

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 1359

Component

Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

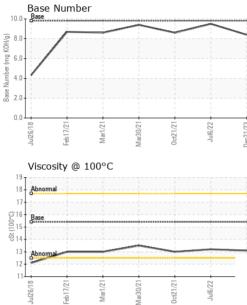
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| SAMPLE INFORI | MATION | method | limit/base | current | history1 | history2 |
|--|--------------------|--------------------------------------|---------------------------------|-------------------------|-------------------------|-------------------------|
| Sample Number | | Client Info | | GFL0092736 | GFL0039442 | GFL0035194 |
| Sample Date | | Client Info | | 21 Dec 2023 | 06 Jul 2022 | 21 Oct 2021 |
| Machine Age | hrs | Client Info | | 31788 | 27662 | 0 |
| Oil Age | hrs | Client Info | | 623 | 27662 | 722 |
| Oil Changed | | Client Info | | Changed | N/A | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| CONTAMINAT | ION | method | limit/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 | | NEG | NEG | NEG |
| WEAR METAL | S | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >100 | 17 | 5 | 15 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | <1 | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | 2 | 1 | 1 |
| Lead | ppm | ASTM D5185m | >40 | 2 | <1 | 5 |
| Copper | ppm | ASTM D5185m | >330 | 12 | <1 | 8 |
| Tin | ppm | ASTM D5185m | >15 | 1 | <1 | <1 |
| Antimony | ppm | ASTM D5185m | | | | 0 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| Boron | ppm | ASTM D5185m | 0 | 6 | 14 | 13 |
| Barium | ppm | ASTM D5185m | 0 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | 57 | 56 | 64 |
| Manganese | ppm | ASTM D5185m | 0 | <1 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | 888 | 849 | 833 |
| Calcium | ppm | ASTM D5185m | 1070 | 1045 | 1084 | 1142 |
| Phosphorus | ppm | ASTM D5185m | 1150 | 825 | 921 | 992 |
| Zinc | ppm | ASTM D5185m | 1270 | 1170 | 1106 | 1103 |
| Sulfur | ppm | ASTM D5185m | 2060 | 2777 | 3364 | 2549 |
| CONTAMINAN | TS | method | limit/base | current | history1 | history2 |
| Silicon | ppm | | >25 | 4 | 3 | 3 |
| Sodium | ppm | ASTM D5185m | | 0 | 2 | 26 |
| Potassium | ppm | ASTM D5185m | >20 | 4 | 0 | 4 |
| INFRA-RED | | method | limit/base | | history1 | history2 |
| | | | 0 | 0 5 | 0.7 | 2 |
| Soot % | % | *ASTM D7844 | | 2.5 | | |
| Soot % Nitration | Abs/cm | *ASTM D7624 | | 10.2 | 6.0 | 9.1 |
| Soot % | | *ASTM D7624 | | | | |
| Soot % Nitration | Abs/cm Abs/.1mm | *ASTM D7624 *ASTM D7415 | >20 | 10.2 | 6.0 | 9.1 |
| Soot % Nitration Sulfation | Abs/cm Abs/.1mm | *ASTM D7624 *ASTM D7415 | >20 >30 | 10.2 23.8 | 6.0 19.0 | 9.1 22.6 |
| Soot % Nitration Sulfation FLUID DEGRAE | Abs/cm Abs/.1mm | *ASTM D7624 *ASTM D7415 method | >20 >30 limit/base >25 | 10.2 23.8 current | 6.0 19.0 history1 | 9.1 22.6 history2 |

Submitted By: WALTER SKOKOWSKI



OIL ANALYSIS REPORT



| White Metal scalar Yellow Metal scalar Precipitate scalar Silt scalar Debris scalar Sand/Dirt scalar Appearance scalar Cdor scalar Emulsified Water scalar Free Water scalar Free Water scalar Free Water scalar Free Vater scalar Mon-ferrous Metals | *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual Method ASTM D445 | NONE NONE NONE NONE NORML NORML >0.2 Iimit/base | NONE NONE NONE NONE NORE NORM NEG e curr 13.1 | IE IE IE IE IE IE IE IE IE INL | NONE NONE NONE NONE NORML NORML NEG NEG history 13.2 | NO NE NE | NE NE NE RML RML G G Story2 |
|--|---|--|---|---|---|--|--|
| Precipitate scalar Silt scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar Free Water scalar Non-ferrous Metals | *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual | NONE NONE NONE NORML NORML >0.2 | NONE NONE NONE NORM NORM NEG NEG | IE IE IE IML | NONE NONE NONE NORML NORML NEG NEG | NO NO NO NO NO NO NO NO 1 | NE NE NE RML RML G G Story2 |
| Silt scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar Free Water scalar Non-ferrous Metals | *Visual *Visual *Visual *Visual *Visual *Visual *Visual method | NONE NONE NORML NORML >0.2 | NONE NONE NORM NORM NEG NEG e curr | IE IE IML IML | NONE NONE NORML NORML NEG NEG history | NO NO NO NO NO NO NO NE NE | NE NE RML RML G G story2 |
| Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar Free Water scalar Free Water scalar FLUID PROPERTIES Visc @ 100°C cSt GRAPHS Ferrous Alloys 100°C to the scalar Ferrous Alloys 100°C to the scalar Non-ferrous Metals | *Visual *Visual *Visual *Visual *Visual *Visual method | NONE NORML NORML >0.2 | NONE NORM NORM NEG NEG e curr | IE IE IML IML | NONE NORML NORML NEG NEG history | NO NO NO NO NE NE | NE NE RML RML G G story2 |
| Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar Free Water scalar Free Water scalar FLUID PROPERTIES Visc @ 100°C cSt GRAPHS Ferrous Alloys | *Visual *Visual *Visual *Visual *Visual method | NONE NORML NORML >0.2 | NONE NORM NORM NEG NEG | IE IML IML | NONE NORML NORML NEG NEG history | NO NO NO NE NE | NE RML RML G G story2 |
| Appearance scalar Odor scalar Emulsified Water scalar Free Water scalar FLUID PROPERTIES Visc @ 100°C cSt GRAPHS Ferrous Alloys | *Visual *Visual *Visual *Visual method | NORML NORML >0.2 | NORM NORM NEG NEG | ML | NORML NORML NEG NEG history ¹ | NO NO NE NE | RML RML G G story2 |
| Odor scalar Emulsified Water scalar Free Water scalar FLUID PROPERTIES Visc @ 100°C cSt GRAPHS Ferrous Alloys | *Visual *Visual *Visual method | NORML >0.2 | NORN NEG NEG e curr | I ML | NORML NEG NEG history1 | NO NE NE | RML G G story2 |
| Emulsified Water scalar Free Water scalar FLUID PROPERTIES Visc @ 100°C cSt GRAPHS Ferrous Alloys Ferrous Alloys Non-ferrous Metals | *Visual *Visual method | >0.2 limit/base | NEG NEG e curr | i | NEG NEG history1 | NEC NEC | G G story2 |
| Free Water scalar FLUID PROPERTIES Visc @ 100°C cSt GRAPHS Ferrous Alloys Ferrous Alloys Non-ferrous Metals | *Visual method | limit/base | NEG e curr | i | NEG history1 | NEC | G story2 |
| FLUID PROPERTIES | method | | e curr | | history1 | t 1 hi | story2 |
| Visc @ 100°C cSt GRAPHS Ferrous Alloys | | | | rrent | | | |
| GRAPHS Ferrous Alloys | ASTM D445 | 15.4 | 13.1 | | 13.2 | 13.(| 0 |
| Ferrous Alloys | $\langle \rangle$ | / | | | | | |
| line lead tin tin tin tin | Julifi22 | Dec21/23 | | | | | |

Base Number

Feb17/21-

Mar1/21

Mar30/21

10.0

8. (mg KOH/g)

6 (

0.0

Jul26/18

Number 4 (Base



Unique Number : 10821168 Diagnostician : Wes Davis Test Package : FLEET Contact: SPENCER LIGGON Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. spencer.liggon@gflenv.com * - 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)

Mar1/21

Feb17/21

: GFL0092736

: 06055219

Mar30/21.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Recieved

Diagnosed

0ct21/21

Jul6/22 -

Dec21/23 -

: 09 Jan 2024

: 10 Jan 2024

Report Id: GFL005 [WUSCAR] 06055219 (Generated: 01/10/2024 13:11:39) Rev: 1

Viscosity @ 100°C

19

18 17

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12 11-

Laboratory

Sample No.

Lab Number

ul26/1

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Submitted By: WALTER SKOKOWSKI

GFL Environmental - 005 - Wilson/Tri-East(CNG)

0ct21/21-

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