

OIL ANALYSIS REPORT

Sample Rating Trend





Diesel Engine

PETRO CANADA DURON SHP 10W30 (--- QTS)

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.

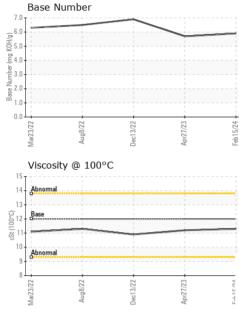
Fluid Condition

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

| • | | Mar2022 | Aug2022 | Dec2022 Apr2023 | Feb2024 | |
|--|--|--|---|---|---|--|
| SAMPLE INFOR | MATION | method | limit/base | current | history1 | history2 |
| Sample Number | | Client Info | | PCA0110862 | PCA0095610 | PCA0081261 |
| Sample Date | | Client Info | | 15 Feb 2024 | 27 Apr 2023 | 13 Dec 2022 |
| Machine Age | mls | Client Info | | 178744 | 126946 | 101717 |
| Oil Age | mls | Client Info | | 178744 | 101717 | 76402 |
| Oil Changed | | Client Info | | Changed | Changed | 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 | >110 | 22 | 20 | 20 |
| Chromium | ppm | ASTM D5185m | >4 | <1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| Silver | ppm | ASTM D5185m | >2 | 0 | 0 | 1 |
| Aluminum | ppm | ASTM D5185m | >25 | 8 | 10 | 14 |
| Lead | ppm | ASTM D5185m | >45 | 0 | 0 | 0 |
| Copper | ppm | ASTM D5185m | >85 | 1 | 1 | 2 |
| Tin | ppm | ASTM D5185m | >4 | <1 | 0 | <1 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Cadmium | | ASTM D5185m | | | | 0 |
| Gaumum | ppm | ASTIVI DUTOJITI | | 0 | 0 | 0 |
| ADDITIVES | ррп | method | limit/base | current | 0 history1 | history2 |
| | | | limit/base | current | history1 | |
| ADDITIVES | ppm | method ASTM D5185m | | | - | history2 |
| ADDITIVES Boron Barium | ppm ppm | method ASTM D5185m ASTM D5185m | 2 | current 2 | history1 3 0 | history2 7 0 |
| ADDITIVES Boron Barium Molybdenum | ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 | current 2 3 | history1 3 | history2 7 |
| ADDITIVES Boron Barium Molybdenum Manganese | ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 | current 2 3 64 | history1 3 0 68 | history2 7 0 65 |
| ADDITIVES Boron Barium Molybdenum | ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 0 | current 2 3 64 0 | history1 3 0 68 <1 | history2 7 0 65 <1 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 0 950 | Current 2 3 64 0 889 | history1 3 0 68 <1 997 | history2 7 0 65 <1 866 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 0 950 1050 | Current 2 3 64 0 889 1103 | history1 3 0 68 <1 997 1163 | history2 7 0 65 <1 866 1206 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus | ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 0 950 1050 995 | Current 2 3 64 0 889 1103 1009 | history1 3 0 68 <1 997 1163 1047 | history2 7 0 65 <1 866 1206 962 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 2 0 50 950 1050 995 1180 | Current 2 3 64 0 889 1103 1009 1212 | history1 3 0 68 <1 997 1163 1047 1303 | history2 7 0 65 <1 866 1206 962 1186 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur | ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 950 1050 995 1180 2600 | Current 2 3 64 0 889 1103 1009 1212 2840 | history1 3 0 68 <1 997 1163 1047 1303 3428 | history2 7 0 65 <1 866 1206 962 1186 3133 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN | ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 2 0 50 950 1050 995 1180 2600 | Current 2 3 64 0 889 1103 1009 1212 2840 Current | history1 3 0 68 <1 997 1163 1047 1303 3428 history1 | history2 7 0 65 <1 866 1206 962 1186 3133 history2 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 2 0 50 950 1050 995 1180 2600 limit/base | current 2 3 64 0 889 1103 1009 1212 2840 current 6 | history1 3 0 68 <1 997 1163 1047 1303 3428 history1 5 | history2 7 0 65 <1 866 1206 962 1186 3133 history2 7 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 2 0 50 950 1050 995 1180 2600 limit/base | current 2 3 64 0 889 1103 1009 1212 2840 current 6 0 | history1 3 0 68 <1 997 1163 1047 1303 3428 history1 5 2 | history2 7 0 65 <1 866 1206 962 1186 3133 history2 7 <1 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 2 0 50 0 950 1050 995 1180 2600 limit/base >30 | current 2 3 64 0 889 1103 1009 1212 2840 current 6 0 11 | history1 3 0 68 <1 997 1163 1047 1303 3428 history1 5 2 13 | history2 7 0 65 <1 866 1206 962 1186 3133 history2 7 <1 28 |
| ADDITIVES 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 | method ASTM D5185m | 2 0 50 0 950 1050 995 1180 2600 limit/base >20 limit/base | Current 2 3 64 0 889 1103 1009 1212 2840 Current 6 0 11 1 | history1 3 0 68 <1 997 1163 1047 1303 3428 history1 5 2 13 history1 | history2 7 0 65 <1 866 1206 962 1186 3133 history2 7 <1 28 history2 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 2 0 50 0 950 1050 995 1180 2600 limit/base >30 20 limit/base | current 2 3 64 0 889 1103 1009 1212 2840 current 6 0 111 current 0 100 | history1 3 0 68 <1 997 1163 1047 1303 3428 history1 5 2 13 history1 0.6 | history2 7 0 65 <1 866 1206 962 1186 3133 history2 7 <1 28 history2 0.7 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 2 0 50 0 950 1050 995 1180 2600 I imit/base >30 220 I imit/base >3 >20 | current 2 3 64 0 889 1103 1009 1212 2840 current 6 0 11 current 0.8 9.9 | history1 3 0 68 <1 997 1163 1047 1303 3428 history1 5 2 13 history1 0.6 9.2 | history2 7 0 65 <1 866 1206 962 1186 3133 history2 7 <1 28 history2 0.7 10.4 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D7185M *ASTM D7624 *ASTM D7624 *ASTM D7415 | 2 0 0 50 0 950 1050 995 1180 2600 imit/base >30 220 imit/base >30 >20 >30 | 2 3 64 0 889 1103 1009 1212 2840 current 6 0 111 current 0.8 9.9 22.6 current | history1 3 0 68 <1 997 1163 1047 1303 3428 history1 5 2 13 history1 0.6 9.2 20.1 history1 | history2 7 0 65 <1 866 1206 962 1186 3133 history2 7 <1 28 history2 0.7 10.4 23.6 history2 |
| ADDITIVES 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 ppm ppm | method ASTM D5185m ASTM D5185m | 2 0 0 50 0 950 1050 995 1180 2600 imit/base >30 220 imit/base >30 >20 >30 | Current 2 3 64 0 889 1103 1009 1212 2840 current 6 0 11 current 0.8 9.9 22.6 | history1 3 0 68 <1 997 1163 1047 1303 3428 history1 5 2 13 history1 0.6 9.2 20.1 | history2 7 0 65 <1 866 1206 962 1186 3133 history2 7 <1 28 history2 0.7 10.4 23.6 |



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 | ERTIES | method | limit/base | current | history1 | history2 |
| Visc @ 100°C | cSt | ASTM D445 | 12.00 | 11.3 | 11.2 | 10.9 |
| GRAPHS | | | | | | |
| Ferrous Alloys | | | | | | |
| 15 10 iron | | | | | | |
| 5 - nickel | | | | | | |
| 80 | | | | | | |
| | | | | | | |
| 5 | | 1 | | | | |
| 25- | | | | | | |
| I5 - | | | | | | |
| 1 I I I I I I I I I I I I I I I I I I I | | | | | | |
| 15 0 5 0 | 2 | | | | | |
| 15 0 5 0 | sc13/22 | 123/23 | b15/24 | | | |
| Mac23/22 0 5 0 5 10 5 1 | Dec13/22 | Api27/23 | Feb 15/24 | | | |
| 15 0 5 0 | _ | Api27/23 | Feb15/24 | | | |
| Non-ferrous Meta | _ | Api27/23 | Feb15/24 | | | |
| Non-ferrous Meta | _ | Api27/23 | Feb15/24 | | | |
| Non-ferrous Meta | _ | Apr27/23 | Feb15/24 | | | |
| Non-ferrous Meta | _ | Apr27/23 | Feb15/24 | | | |
| Non-ferrous Meta | _ | Api27/23 | Feb 15/24 | | | |
| Non-ferrous Meta | _ | Api21/23 | Feb15/24 | | | |
| Non-ferrous Meta | _ | Apr27123 | Feb15/24 | | | |
| Non-ferrous Meta | ls | | | | | |
| Non-ferrous Meta | ls | | | | | |
| Non-ferrous Meta | Is | Api27/23 | Feb15/24 | | | |
| Non-ferrous Meta | Is | | | Base Number | - | |
| Non-ferrous Meta | Is | | 47519 92 | Base Number | - | |
| Non-ferrous Meta | Is | | Fab:15/24 | Base Number | | |

쎯 2.0 1.0 0.0

Mar23/22

Feb15/24.

: 20 Feb 2024

: 21 Feb 2024

: 21 Feb 2024 - Wes Davis



Test Package : FLEET Contact: GEORGE EDWARDS Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. gedwards@nwwhite.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)

Dec13/22

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

Received

Diagnosed

Tested

Apr27/23 .

Aug8/22 .

Mar23/22

: PCA0110862

Laboratory Sample No.

Lab Number : 06094035

Unique Number : 10886888

Apr27/23 -

COLUMBIA, SC

US 29210

T:

F:

100 INDEPENDENCE BLVD

Feb15/24 -

Dec13/22 -

NW WHITE & CO - COLUMBIA DIVISION

Aug8/22