

OIL ANALYSIS REPORT

Sample Rating Trend

Mark2021 Jud2021 Sep/2021 Feb/2022 Mark2022 Aug/2022 Oct/2022 Sep/2023





Machine Id **527026-738**

Component

Diesel Engine

CHEVRON DELO 400 XLE 15W40 (--- 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

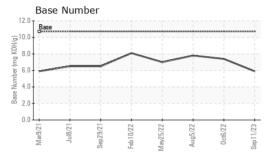
Fluid Condition

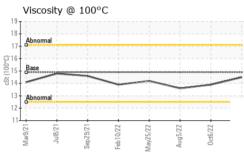
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| | | Mar2021 . | lul2021 Sep2021 Feb20 | 22 May2022 Aug2022 Oct2022 | Sep2023 | |
|---|--|---|--|--|--|--|
| SAMPLE INFORI | MATION | method | limit/base | current | history1 | history2 |
| Sample Number | | Client Info | | GFL0084502 | GFL0060789 | GFL0037088 |
| Sample Date | | Client Info | | 11 Sep 2023 | 06 Oct 2022 | 05 Aug 2022 |
| Machine Age | hrs | Client Info | | 19474 | 15153 | 14466 |
| Oil Age | hrs | Client Info | | 4320 | 687 | 591 |
| 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 |
| Glycol | | WC Method | | NEG | NEG | NEG |
| WEAR METAL | S | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >100 | 38 | 27 | 14 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | 2 | 1 |
| Nickel | ppm | ASTM D5185m | >4 | 0 | 1 | 0 |
| Titanium | ppm | ASTM D5185m | | 11 | 4 | <1 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 1 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | 6 | 4 | 5 |
| Lead | ppm | ASTM D5185m | >40 | 18 | 12 | 8 |
| Copper | ppm | ASTM D5185m | >330 | 1 | 2 | 4 |
| Tin | ppm | ASTM D5185m | >15 | <1 | 1 | <1 |
| Vanadium | ppm | ASTM D5185m | | <1 | 2 | 0 |
| Cadmium | ppm | ASTM D5185m | | 0 | <1 | 0 |
| | 1-1- | 710 1111 20 100111 | | • | <u> </u> | |
| ADDITIVES | 1-1- | method | limit/base | current | history1 | history2 |
| ADDITIVES Boron | ppm | | limit/base | | | |
| | | method | limit/base | current | history1 | history2 |
| Boron | ppm | method ASTM D5185m | limit/base | current 66 | history1 104 | history2 208 |
| Boron Barium | ppm | method ASTM D5185m ASTM D5185m | limit/base | current 66 0 | history1 104 <1 | history2 208 2 |
| Boron Barium Molybdenum | ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | current 66 0 72 | history1 104 <1 95 | history2 208 2 133 |
| Boron Barium Molybdenum Manganese | ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | current 66 0 72 <1 | history1 104 <1 95 2 | history2 208 2 133 <1 |
| Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | current 66 0 72 <1 802 | history1 104 <1 95 2 527 | history2 208 2 133 <1 603 |
| Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | | current 66 0 72 <1 802 1879 | history1 104 <1 95 2 527 1696 | history2 208 2 133 <1 603 1547 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus | ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 760 | current 66 0 72 <1 802 1879 898 | history1 104 <1 95 2 527 1696 773 | history2 208 2 133 <1 603 1547 728 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 760 830 | current 66 0 72 <1 802 1879 898 1107 | history1 104 <1 95 2 527 1696 773 918 | history2 208 2 133 <1 603 1547 728 906 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur | ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 760 830 2770 limit/base | current 66 0 72 <1 802 1879 898 1107 4009 | history1 104 <1 95 2 527 1696 773 918 3129 | history2 208 2 133 <1 603 1547 728 906 2585 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN | ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 760 830 2770 limit/base | current 66 0 72 <1 802 1879 898 1107 4009 current | history1 104 <1 95 2 527 1696 773 918 3129 history1 | history2 208 2 133 <1 603 1547 728 906 2585 history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 760 830 2770 limit/base | current 66 0 72 <1 802 1879 898 1107 4009 current 8 | history1 104 <1 95 2 527 1696 773 918 3129 history1 | history2 208 2 133 <1 603 1547 728 906 2585 history2 8 |
| 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 | 760 830 2770 limit/base >25 | current 66 0 72 <1 802 1879 898 1107 4009 current 8 6 | history1 104 <1 95 2 527 1696 773 918 3129 history1 9 6 | history2 208 2 133 <1 603 1547 728 906 2585 history2 8 3 |
| 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 | 760 830 2770 limit/base >25 >20 | current 66 0 72 <1 802 1879 898 1107 4009 current 8 6 9 | history1 104 <1 95 2 527 1696 773 918 3129 history1 9 6 4 | history2 208 2 133 <1 603 1547 728 906 2585 history2 8 3 2 |
| 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 | 760 830 2770 limit/base >25 >20 | current 66 0 72 <1 802 1879 898 1107 4009 current 8 6 9 current | history1 104 <1 95 2 527 1696 773 918 3129 history1 9 6 4 history1 | history2 208 2 133 <1 603 1547 728 906 2585 history2 8 3 2 history2 |
| 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 method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 760 830 2770 limit/base >25 >20 limit/base >3 | current 66 0 72 <1 802 1879 898 1107 4009 current 8 6 9 current 0.4 | history1 104 <1 95 2 527 1696 773 918 3129 history1 9 6 4 history1 0.4 | history2 208 2 133 <1 603 1547 728 906 2585 history2 8 3 2 history2 0.3 |
| 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 method ASTM D5185m ASTM D5185m *ASTM D5185m ASTM D5185m *ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m ASTM D5185m *ASTM D76185m *ASTM D7624 *ASTM D7624 | 760 830 2770 limit/base >25 >20 limit/base >3 >20 | current 66 0 72 <1 802 1879 898 1107 4009 current 8 6 9 current 0.4 11.8 | history1 104 <1 95 2 527 1696 773 918 3129 history1 9 6 4 history1 0.4 12.5 | history2 208 2 133 <1 603 1547 728 906 2585 history2 8 3 2 history2 0.3 10.8 |
| 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 method ASTM D5185m ASTM D5185m *ASTM D5185m ASTM D5185m *ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m ASTM D5185m *ASTM D76185m *ASTM D7624 *ASTM D7624 | 760 830 2770 limit/base >25 >20 limit/base >3 >20 >30 | current 66 0 72 <1 802 1879 898 1107 4009 current 8 6 9 current 0.4 11.8 25.8 | history1 104 <1 95 2 527 1696 773 918 3129 history1 9 6 4 history1 0.4 12.5 25.0 | history2 208 2 133 <1 603 1547 728 906 2585 history2 8 3 2 history2 0.3 10.8 25.4 |



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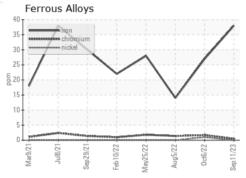


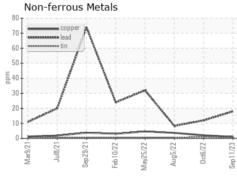


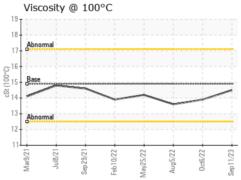
| VISUAL | | method | limit/base | current | history1 | history2 |
|-------------------------|--------|---------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Precipitate | 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 |

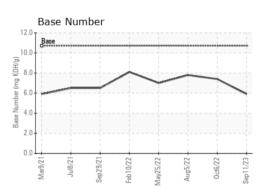
| FLUID PROPE | RHES | metnoa | ilmit/base | current | nistory i | nistory2 |
|--------------|------|-----------|------------|---------|-----------|----------|
| Visc @ 100°C | cSt | ASTM D445 | 14.9 | 14.5 | 13.9 | 13.6 |

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number Test Package : FLEET

Unique Number : 10646993

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0084502 : 05951034

Received : 14 Sep 2023 Diagnosed : 19 Sep 2023 Diagnostician : Jonathan Hester GFL Environmental - 629 - Northern A1

3947 US 131 N Kalkaska, MI US 49646-8428

Contact: MITCH HERSHBERGER

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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