

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id **2311** Component **Diesel Engine** Fluid **CHEVRON 15W40 (--- GAL)**

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. 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 INFORM | ATION | method | limit/base | current | history1 | history2 |
|--|--|--|---|--|---|---|
| Sample Number | | Client Info | | WC0829021 | PCA0085447 | PCA0085464 |
| Sample Date | | Client Info | | 09 Aug 2023 | 30 May 2023 | 28 Mar 2023 |
| Machine Age | mls | Client Info | | 95136 | 75974 | 56758 |
| Oil Age | mls | Client Info | | 0 | 0 | 0 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| CONTAMINATION | ۷ | method | limit/base | current | history1 | history2 |
| Fuel | | WC Method | >3.0 | <1.0 | <1.0 | <1.0 |
| Glycol | | WC Method | | NEG | NEG | NEG |
| WEAR METALS | | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >90 | 17 | 18 | 22 |
| Chromium | ppm | ASTM D5185m | >20 | 2 | 2 | 2 |
| Nickel | ppm | ASTM D5185m | >2 | <1 | <1 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185m | >2 | <1 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 19 | 14 | 23 |
| Lead | ppm | ASTM D5185m | >40 | 4 | 3 | 3 |
| Copper | ppm | ASTM D5185m | >330 | 1 | 1 | 1 |
| Tin | ppm | ASTM D5185m | >15 | 1 | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| | | | | | | |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| ADDITIVES Boron | ppm | method ASTM D5185m | limit/base | current 138 | history1 164 | history2 200 |
| ADDITIVES Boron Barium | ppm ppm | method ASTM D5185m ASTM D5185m | limit/base | current 138 0 | history1 164 0 | history2 200 0 |
| ADDITIVES Boron Barium Molybdenum | ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | current 138 0 121 | history1 164 0 120 | history2 200 0 123 |
| ADDITIVES Boron Barium Molybdenum Manganese | ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | current 138 0 121 1 | history1 164 0 120 <1 | history2 200 0 123 1 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | current 138 0 121 1 661 | history1 164 0 120 <1 631 | history2 200 0 123 1 740 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm ppm ppm | methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m | limit/base | current 138 0 121 1 661 1549 | history1 164 0 120 <1 631 1614 | history2 200 0 123 1 740 1646 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus | ppm ppm ppm ppm ppm ppm | methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m | limit/base | current 138 0 121 1 661 1549 707 | history1 164 0 120 <1 631 1614 668 | history2 200 0 123 1 740 1646 738 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | current 138 0 121 1 661 1549 707 867 | history1 164 0 120 <1 631 1614 668 823 | history2 200 0 123 1 740 1646 738 956 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur | ppm ppm ppm ppm ppm ppm ppm ppm | methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m | limit/base | current 138 0 121 1 661 1549 707 867 3013 | history1 164 0 120 <1 631 1614 668 823 2879 | history2 200 0 123 1 740 1646 738 956 3062 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS | ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | current 138 0 121 1 661 1549 707 867 3013 | history1 164 0 120 <1 631 1614 668 823 2879 history1 | history2 200 0 123 1 740 1646 738 956 3062 history2 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon | ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | limit/base | current 138 0 121 1 661 1549 707 867 3013 current 9 | history1 164 0 120 <1 631 1614 668 823 2879 history1 9 | history2 200 0 123 1 740 1646 738 956 3062 history2 10 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium | ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | limit/base limit/base >25 >50 | current 138 0 121 1 661 1549 707 867 3013 current 9 2 | history1 164 0 120 <1 631 1614 668 823 2879 history1 9 3 | history2 200 0 123 1 740 1646 738 956 3062 history2 10 2 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium | ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | limit/base | current 138 0 121 1 661 1549 707 867 3013 current 9 2 38 | history1 164 0 120 <1 631 1614 668 823 2879 history1 9 3 30 | history2 200 0 123 1 740 1646 738 956 3062 history2 10 2 43 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED | ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | limit/base limit/base >25 >50 >20 limit/base | current 138 0 121 1 661 1549 707 867 3013 current 9 2 38 current | history1 164 0 120 <1 631 1614 668 823 2879 history1 9 3 30 history1 | history2 200 0 123 1 740 1646 738 956 3062 history2 10 2 43 history2 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % | ppm | method ASTM D5185m | limit/base | current 138 0 121 1 661 1549 707 867 3013 current 9 2 38 current 0.4 | history1 164 0 120 <1 631 1614 668 823 2879 history1 9 3 30 history1 0.4 | history2 200 0 123 1 740 1646 738 956 3062 history2 10 2 43 history2 0.3 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | limit/base | current 138 0 121 1 661 1549 707 867 3013 current 9 2 38 current 0.4 9.8 | history1 164 0 120 <1 631 1614 668 823 2879 history1 9 30 history1 0.4 9.7 | history2 200 0 123 1 740 1646 738 956 3062 history2 10 2 43 history2 0.3 9.4 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D7844 *ASTM D7624 | limit/base | current 138 0 121 1 661 1549 707 867 3013 current 9 2 38 current 0.4 9.8 24.8 | history1 164 0 120 <1 631 1614 668 823 2879 history1 9 3 30 history1 0.4 9.7 25.4 | history2 200 0 123 1 740 1646 738 956 3062 history2 10 2 43 history2 0.3 9.4 24.3 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m | limit/base | current 138 0 121 1 661 1549 707 867 3013 current 9 2 38 current 0.4 9.8 24.8 | history1 164 0 120 <1 631 1614 668 823 2879 history1 9 3 30 history1 0.4 9.7 25.4 history1 | history2 200 0 123 1 740 1646 738 956 3062 history2 10 2 43 history2 0.3 9.4 24.3 history2 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414 | limit/base Imit/base >25 >50 >20 limit/base >6 >20 limit/base >30 limit/base >25 | current 138 0 121 1 661 1549 707 867 3013 current 9 2 38 current 0.4 9.8 24.8 current | history1 164 0 120 <1 631 1614 668 823 2879 history1 9 3 30 history1 0.4 9.7 25.4 history1 20.9 | history2 200 0 123 1 740 1646 738 956 3062 history2 10 2 43 history2 0.3 9.4 24.3 history2 19.5 |



OIL ANALYSIS REPORT

VISUAL



| C | May30/23 | White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water | scalar scalar scalar scalar scalar scalar scalar scalar scalar scalar | *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual | NONE NONE NONE NONE NORML NORML >0.2 | NONE NONE NONE NONE NORE NORML NORML NEG NEG | NONE NONE NONE NONE NORML NORML NEG NEG | NONE NONE NONE NONE NORML NORML NEG NEG |
|---|--|---|--|---|--|--|--|--|
| | | FLUID PROPER Visc @ 100°C | cSt | ASTM D445 | limit/base | current | history1 12.7 | history2 12.5 |
| Mar28/23 | | GRAPHS Ferrous Alloys | Mar2823 Als | EZ/06/refW | Aug9/23 | | | |
| | | VISCOSITY @ 100% | | | 8. 7. (DHO) 5. 9. 9. 9. 9. 9. 9. 9. 9. 9. 1. 1. | Base Number | | |
| Certificate L2367 To discuss thi * - Denotes te | Laboratory Sample No. Lab Number Unique Number Test Package is sample report, est methods that a | : WearCheck USA - : WC0829021 : 05922701 : 10602648 : FLEET contact Customer Servare are outside of the ISO | 501 Madis Received Diagnose Diagnost vice at 1-8 17025 sco | con Ave., Ca i : 11 / ician : We 00-237-1365 pe of accrea | ry, NC 2751: Aug 2023 Aug 2023 s Davis D. D. Litation. | 00ct27/22 | rgon Trucking 11337 5 Cont eddy.sn | J Inc MAG60 State Route 800 Magnolia, OF US 44643 cact: Eddy Smith hith@ergon.con |

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Submitted By: Eddy Smith Page 2 of 2