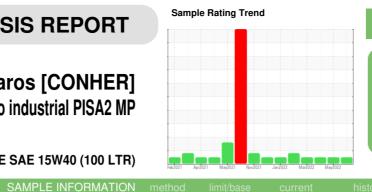


OIL ANALYSIS REPORT

GUAY SON/Yavaros [CONHER] CATERPILLAR Pacifico industrial PISA2 MP Component

Diesel Engine Fluid

CHEVRON DELO 400 SDE SAE 15W40 (100 LTR)





NORMAL

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.

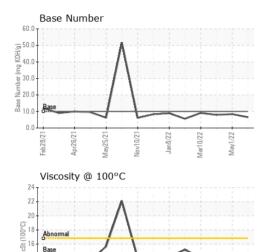
| SAMPLE INFORM | | method | limit/base | current | nistory i | nistory2 |
|---|--|---|--|---|--|---|
| Sample Number | | Client Info | | KL0010185 | KL0009245 | KL0009227 |
| Sample Date | | Client Info | | 13 Jun 2022 | 01 May 2022 | 08 Apr 2022 |
| Machine Age | hrs | Client Info | | 0 | 35660 | 35310 |
| Oil Age | hrs | Client Info | | 0 | 350 | 586 |
| Oil Changed | | Client Info | | N/A | N/A | N/A |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| | | | | | | |
| CONTAMINATIO | N | 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 METALS | | method | limit/base | current | history1 | history2 |
| | | | | | | |
| Iron | ppm | ASTM D5185m | >100 | 53 | 19 | 56 |
| Chromium | ppm | ASTM D5185m | >20 | 2 | <1 | 1 |
| Nickel | ppm | ASTM D5185m | >2 | 0 | 0 | 1 |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| Silver | ppm | ASTM D5185m | | <1 | <1 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | 3 | 3 | 4 |
| Lead | ppm | ASTM D5185m | >40 | 3 | <1 | 2 |
| Copper | ppm | ASTM D5185m | >330 | 7 | 4 | 14 |
| Tin | ppm | ASTM D5185m | >15 | <1 | <1 | 2 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| | | | | | | |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| ADDITIVES Boron | ppm | method ASTM D5185m | limit/base | current 53 | history1 205 | history2 133 |
| | ppm ppm | | limit/base | | | |
| Boron | | ASTM D5185m | limit/base | 53 | 205 | 133 |
| Boron Barium | ppm | ASTM D5185m ASTM D5185m | limit/base | 53 0 | 205 0 | 133 0 |
| Boron Barium Molybdenum | ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 53 0 71 | 205 0 88 | 133 0 121 |
| Boron Barium Molybdenum Manganese | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 53 0 71 <1 | 205 0 88 <1 | 133 0 121 1 |
| Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 53 0 71 <1 421 | 205 0 88 <1 594 | 133 0 121 1 773 |
| Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | | 53 0 71 <1 421 1405 | 205 0 88 <1 594 1553 | 133 0 121 1 773 1708 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus | ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 760 | 53 0 71 <1 421 1405 552 | 205 0 88 <1 594 1553 693 | 133 0 121 1 773 1708 779 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 760 800 | 53 0 71 <1 421 1405 552 681 | 205 0 88 <1 594 1553 693 745 | 133 0 121 1 773 1708 779 888 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 760 800 3000 limit/base | 53 0 71 <1 421 1405 552 681 2154 current | 205 0 88 <1 594 1553 693 745 2201 history1 | 133 0 121 1 773 1708 779 888 2354 history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method | 760 800 3000 limit/base | 53 0 71 <1 421 1405 552 681 2154 current 8 | 205 0 88 <1 594 1553 693 745 2201 history1 7 | 133 0 121 1 773 1708 779 888 2354 kistory2 7 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 760 800 3000 limit/base >25 | 53 0 71 <1 421 1405 552 681 2154 current 8 < | 205 0 88 <1 594 1553 693 745 2201 history1 7 <1 | 133 0 121 1 773 1708 779 888 2354 history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | 760 800 3000 limit/base >25 >20 | 53 0 71 <1 421 1405 552 681 2154 current 8 <1 2 | 205 0 88 <1 594 1553 693 745 2201 history1 7 <1 0 | 133 0 121 1 773 1708 779 888 2354 history2 7 2 0 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | 760 800 3000 limit/base >25 | 53 0 71 <1 421 1405 552 681 2154 current 8 <1 2 | 205 0 88 <1 594 1553 693 745 2201 history1 7 <1 | 133 0 121 1 773 1708 779 888 2354 history2 7 2 0 0 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | 760 800 3000 limit/base >25 >20 limit/base >3 | 53 0 71 <1 421 1405 552 681 2154 <i>current</i> 8 <1 2 <i>current</i> 1.8 | 205 0 88 <1 594 1553 693 745 2201 history1 7 <1 0 history1 0.8 | 133 0 121 1 773 1708 779 888 2354 history2 7 2 0 0 history2 2.3 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | 760 800 3000 limit/base >25 >20 limit/base >3 | 53 0 71 <1 421 1405 552 681 2154 current 8 <1 2 | 205 0 88 <1 594 1553 693 745 2201 history1 7 <1 0 | 133 0 121 1 773 1708 779 888 2354 history2 7 2 0 0 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | 760 800 3000 limit/base >25 >20 limit/base >3 | 53 0 71 <1 421 1405 552 681 2154 <i>current</i> 8 <1 2 <i>current</i> 1.8 | 205 0 88 <1 594 1553 693 745 2201 history1 7 <1 0 history1 0.8 | 133 0 121 1 773 1708 779 888 2354 history2 7 2 0 history2 2.3 |
| 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 | ASTM D5185m ASTM D5185m | 760 800 3000 limit/base >25 >20 limit/base >3 >20 | 53 0 71 <1 421 1405 552 681 2154 <i>current</i> 8 <1 2 <i>current</i> 1.8 10.4 | 205 0 88 <1 594 1553 693 745 2201 history1 7 <1 0 history1 0.8 6.5 | 133 0 121 1 773 1708 779 888 2354 history2 7 2 2 0 history2 2.3 11.3 |
| 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 | ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415 | 760 800 3000 225 >22 >20 imit/base >3 >20 >30 >30 >30 | 53 0 71 <1 421 1405 552 681 2154 <i>current</i> 8 <1 2 <i>current</i> 1.8 10.4 25.6 <i>current</i> | 205 0 88 <1 594 1553 693 745 2201 history1 7 <100 history1 0.8 6.5 22.5 history1 | 133 0 121 1 773 1708 779 888 2354 history2 7 2 2 0 history2 2.3 11.3 29.8 history2 |
| 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 | ASTM D5185m ASTM D5185m | 760 800 3000 imit/base >25 >20 imit/base >3 >20 >3 >20 | 53 0 71 <1 421 1405 552 681 2154 current 8 <1 2 current 1.8 10.4 25.6 | 205 0 88 <1 594 1553 693 745 2201 history1 7 <1 0 history1 0.8 6.5 22.5 | 133 0 121 1 773 1708 779 888 2354 history2 7 2 2 0 history2 2.3 11.3 29.8 |



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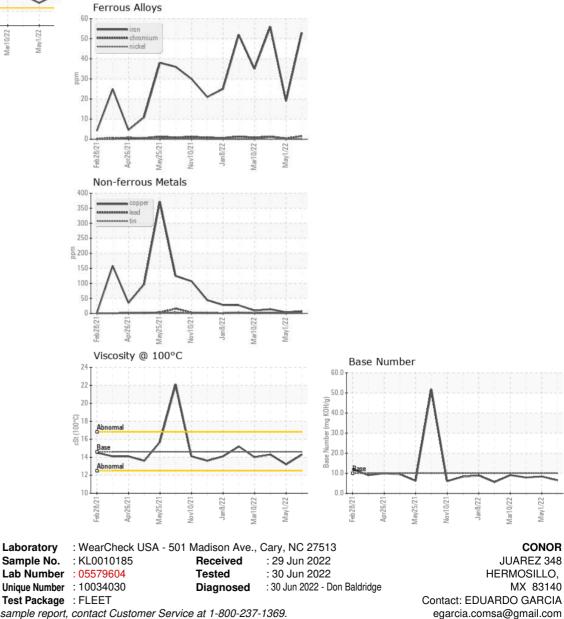


Mav25/21

VDr76/7

Mar10/27

| VISUAL | | method | | | | 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 PROPERT | IES | method | limit/base | current | history1 | history2 |
| Visc @ 100°C | cSt | ASTM D445 | 14.6 | 14.3 | 13.2 | 14.3 |
| GRAPHS | | | | | | |



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Submitted By: EDUARDO GARCIA

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