

OIL ANALYSIS REPORT

SAMPLE INFORMATION method

Sample Rating Trend



Area [23532] 30-81

Diesel Engine

Fluid CONOCO PHILLIPS GUARDOL ECT 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.

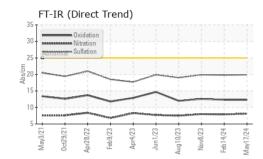
Fluid Condition

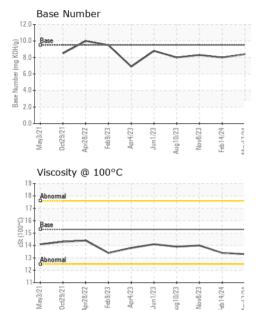
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| SAMPLE INFORM | AHON | method | limit/base | current | history1 | history2 |
|--|--|--|--|--|--|--|
| Sample Number | | Client Info | | WC0923320 | WC0836082 | WC0836112 |
| Sample Date | | Client Info | | 17 May 2024 | 14 Feb 2024 | 08 Nov 2023 |
| Machine Age | hrs | Client Info | | 6527 | 6256 | 5980 |
| Oil Age | hrs | Client Info | | 271 | 276 | 286 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| | | | | Normize | | |
| 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 | 8 | 8 | 5 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 1 | <1 | <1 |
| Lead | ppm | ASTM D5185m | >40 | 0 | 0 | 0 |
| Copper | ppm | ASTM D5185m | >330 | <1 | <1 | 0 |
| Tin | ppm | ASTM D5185m | >15 | 0 | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | <1 | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Gaumum | pp | 7101111 00100111 | | U | 0 | 0 |
| ADDITIVES | pp | method | limit/base | current | history1 | history2 |
| ADDITIVES | | method | | current | history1 | history2 |
| ADDITIVES Boron | ppm | method ASTM D5185m | limit/base 85 | current 64 | history1 70 | history2 58 |
| ADDITIVES Boron Barium | ppm ppm | method ASTM D5185m ASTM D5185m | | current | history1 | history2 |
| ADDITIVES Boron Barium Molybdenum | ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m | | current 64 0 2 | history1 70 0 2 | history2 58 0 |
| ADDITIVES Boron Barium Molybdenum Manganese | ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 85 | current 64 0 2 <1 | history1 70 0 2 <1 | history2 58 0 0 <1 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 85 | current 64 0 2 <1 729 | history1 70 0 2 <1 691 | history2 58 0 0 <1 710 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 85 350 1800 | Current 64 0 2 <1 729 1370 | history1 70 0 2 <1 691 1284 | history2 58 0 0 <1 710 1251 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus | ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 85 350 1800 1000 | Current 64 0 2 <1 729 1370 1063 | history1 70 0 2 <1 691 1284 1002 | history2 58 0 0 <1 710 1251 1054 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 85 350 1800 | Current 64 0 2 <1 729 1370 | history1 70 0 2 <1 691 1284 | history2 58 0 0 <1 710 1251 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 85 350 1800 1000 1100 | Current 64 0 2 <1 729 1370 1063 1269 | history1 70 0 2 <1 691 1284 1002 1106 | history2 58 0 0 <1 710 1251 1054 1207 |
| 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 ASTM D5185m ASTM D5185m | 85 350 1800 1000 1100 3500 | Current 64 0 2 <1 729 1370 1063 1269 4373 | history1 70 0 2 <1 691 1284 1002 1106 3552 | history2 58 0 0 <1 710 1251 1054 1207 3543 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon | ppm ppm ppm ppm ppm ppm ppm ppm | methodASTM D5185mASTM D5185m | 85 350 1800 1000 1100 3500 | current 64 0 2 <1 729 1370 1063 1269 4373 current 4 | history1 70 0 2 <1 691 1284 1002 1106 3552 history1 3 | history2 58 0 |
| 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 ASTM D5185m | 85 350 1800 1000 1100 3500 limit/base >25 | Current 64 0 2 <1 729 1370 1063 1269 4373 Current | history1 70 0 2 <1 691 1284 1002 1106 3552 history1 | history2 58 0 0 <1 710 1251 1054 1207 3543 history2 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium | ppm ppm ppm ppm ppm ppm ppm ppm ppm | methodASTM D5185mASTM D5185m | 85 350 1800 1000 1100 3500 limit/base >25 | current 64 0 2 <1 729 1370 1063 1269 4373 current 4 1 | history1 70 0 2 <1 691 1284 1002 1106 3552 history1 3 4 | history2 58 0 0 <1 710 1251 1054 1207 3543 history2 4 0 |
| 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 | 85 350 1800 1000 1100 3500 limit/base >25 >20 | Current 64 0 2 <1 729 1370 1063 1269 4373 Current 4 1 2 2 Current | history1 70 0 2 <1 691 1284 1002 1106 3552 history1 3 4 1 history1 | history2 58 0 - 710 1251 1054 1207 3543 history2 4 0 1 history2 4 0 1 history2 |
| ADDITIVES 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 | method ASTM D5185m | 85 350 1800 1000 1100 3500 limit/base >25 >20 limit/base >3 | current 64 0 2 <1 729 1370 1063 1269 4373 current 4 1 2 current 0.6 | history1 70 0 2 <1 691 1284 1002 1106 3552 history1 3 4 1 history1 0.6 | history2 58 0 - 710 1251 1054 1207 3543 history2 4 0 1 +history2 4 0 1 - 0 1 - 4 0 1 - 0 0 0.6 |
| 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 | method ASTM D5185m | 85 350 1800 1000 1100 3500 imit/base >25 >20 imit/base >3 >20 | current 64 0 2 <1 729 1370 1063 1269 4373 current 4 1 2 current 0.6 8.1 | history1 70 0 2 <1 691 1284 1002 1106 3552 history1 3 4 1 history1 0.6 7.9 | history2 58 0 <1 710 1251 1054 1207 3543 history2 4 0 1 history2 4 0 1 history2 4 0 1 history2 0.6 8.0 |
| 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 | 85 350 1800 1000 1100 3500 Imit/base >25 20 Imit/base >3 >20 >30 | Current 64 0 2 <1 729 1370 1063 1269 4373 current 4 1 2 current 0.6 8.1 19.9 | history1 70 0 2 <1 691 1284 1002 1106 3552 history1 3 4 1 history1 0.6 7.9 19.8 | history2 58 0 <1 710 1251 1054 1207 3543 history2 4 0 1 history2 4 0 1 history2 0.6 8.0 19.9 |
| 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 *ASTM D7415 method | 85 350 1800 1000 1100 3500 25 25 220 220 imit/base >3 20 20 30 30 | Current 64 0 2 <1 729 1370 1063 1269 4373 Current 4 1 2 Current 0.6 8.1 19.9 Current | history1 70 0 2 <1 691 1284 1002 1106 3552 history1 3 4 1 history1 0.6 7.9 19.8 history1 | history2 58 0 710 1251 1054 1207 3543 history2 4 0 1 history2 4 0 1 history2 4 0 1 history2 0.6 8.0 19.9 history2 |
| 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 *ASTM D7415 method *ASTM D7414 | 85 350 1800 1000 1100 3500 Imit/base >25 20 Imit/base >3 >20 >30 | Current 64 0 2 <1 729 1370 1063 1269 4373 current 4 1 2 current 0.6 8.1 19.9 | history1 70 0 2 <1 691 1284 1002 1106 3552 history1 3 4 1 history1 0.6 7.9 19.8 | history2 58 0 <1 710 1251 1054 1207 3543 history2 4 0 1 history2 4 0 1 history2 0.6 8.0 19.9 |

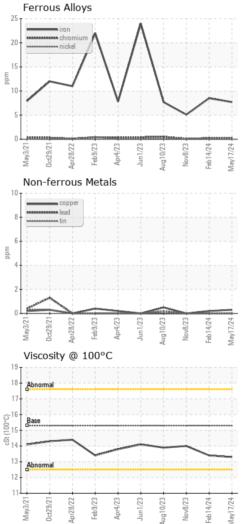


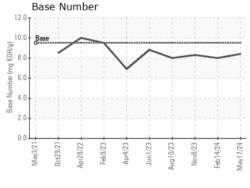
OIL ANALYSIS REPORT





| 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 PROPERT | IES | method | limit/base | current | history1 | history2 |
| Visc @ 100°C | cSt | ASTM D445 | 15.3 | 13.3 | 13.4 | 14.0 |
| GRAPHS | | | | | | |





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 MANHATTAN ROAD AND BRIDGE Sample No. : WC0923320 Received : 24 Jun 2024 5601 S 122ND E AVE Lab Number : 06217900 Tested : 25 Jun 2024 TULSA, OK Unique Number : 11096097 Diagnosed : 25 Jun 2024 - Wes Davis US 74146 Test Package : CONST (Additional Tests: TBN) Contact: BEN CALDWELL Certificate 12367 kevin.marson@wearcheck.com 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. T: (918)728-5749

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

Report Id: MANTUL [WUSCAR] 06217900 (Generated: 06/25/2024 05:03:05) Rev: 1

Submitted By: JAMES STEELMON

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