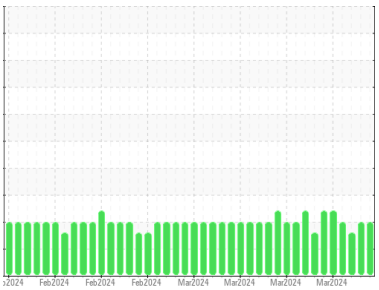
# OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
**WCLSNC**
Machine Id
**QC230801HY**
Component
**Hydraulic System**
Fluid
**JOHN DEERE HY-GARD HYD/TRANS (--- GAL)**

## DIAGNOSIS

**Recommendation**
We recommend you service the filters on this component. Resample at the next service interval to monitor.

**Wear**
All component wear rates are normal.

**Contamination**
There is a high amount of particulates present in the oil.

**Fluid Condition**
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **WC0929386** | WC0929385 | WC0916256 |
| Sample Date | | Client Info | | **02 Apr 2024** | 01 Apr 2024 | 29 Mar 2024 |
| Machine Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **N/A** | N/A | N/A |
| Sample Status | | | | **ABNORMAL** | ABNORMAL | ABNORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| PQ | | ASTM D8184 | >47 | **41** | 49 | 82 |
| Iron | ppm | ASTM D5185m | >78 | **73** | 66 | 94 |
| Chromium | ppm | ASTM D5185m | >2 | **<1** | 1 | 1 |
| Nickel | ppm | ASTM D5185m | >3 | **1** | 2 | 2 |
| Titanium | ppm | ASTM D5185m | >2 | **<1** | <1 | <1 |
| Silver | ppm | ASTM D5185m | >2 | **<1** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >5 | **3** | 3 | 3 |
| Lead | ppm | ASTM D5185m | >11 | **9** | 10 | 8 |
| Copper | ppm | ASTM D5185m | >84 | **75** | 71 | 80 |
| Tin | ppm | ASTM D5185m | >4 | **3** | 3 | 4 |
| Vanadium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | <1 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 6 | **97** | 104 | 108 |
| Barium | ppm | ASTM D5185m | 0 | **0** | <1 | 0 |
| Molybdenum | ppm | ASTM D5185m | 0 | **0** | 0 | <1 |
| Manganese | ppm | ASTM D5185m | | **20** | 19 | 25 |
| Magnesium | ppm | ASTM D5185m | 145 | **20** | 22 | 21 |
| Calcium | ppm | ASTM D5185m | 3570 | **3343** | 3495 | 3231 |
| Phosphorus | ppm | ASTM D5185m | 1290 | **1102** | 1191 | 1014 |
| Zinc | ppm | ASTM D5185m | 1640 | **1314** | 1394 | 1251 |
| Sulfur | ppm | ASTM D5185m | | **3400** | 3872 | 3131 |

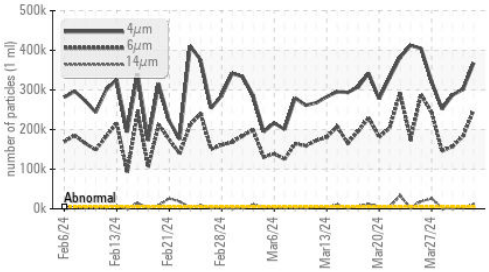
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >11 | **9** | 9 | 11 |
| Sodium | ppm | ASTM D5185m | >23 | **18** | 19 | 19 |
| Potassium | ppm | ASTM D5185m | >20 | **3** | 2 | 2 |
| Water | % | ASTM D6304 | >0.1669 | **0.057** | 0.048 | 0.064 |
| ppm Water | ppm | ASTM D6304 | >1669 | **574** | 487 | 641 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | ▲ **367883** | ▲ 301459 | ▲ 287516 |
| Particles >6µm | | ASTM D7647 | >1300 | ▲ **249298** | ▲ 183857 | ▲ 157327 |
| Particles >14µm | | ASTM D7647 | >160 | ▲ **11434** | ▲ 3471 | ▲ 1040 |
| Particles >21µm | | ASTM D7647 | >40 | ▲ **759** | ▲ 194 | 20 |
| Particles >38µm | | ASTM D7647 | >10 | **9** | 0 | 0 |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | ▲ **26/25/21** | ▲ 25/25/19 | ▲ 25/24/17 |

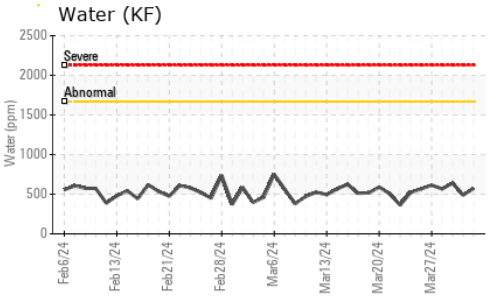
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 1.8 | **0.86** | 0.83 | 1.24 |

# OIL ANALYSIS REPORT

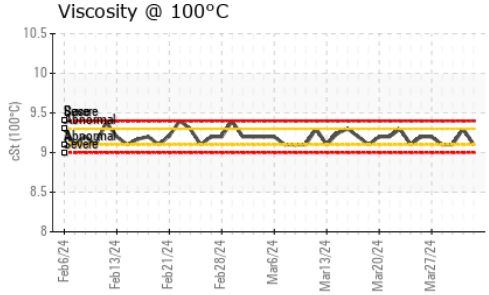
Particle Trend



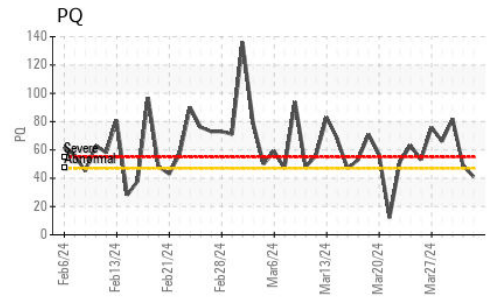

Water (KF)



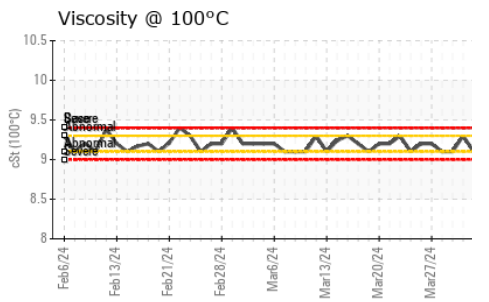

Viscosity @ 100°C




PQ




Viscosity @ 100°C



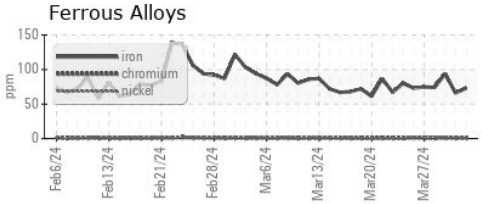

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **MODER** | MODER | MODER |
| 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 | >0.1669 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 57.0 | **62.8** | 62.4 | 62.9 |
| Visc @ 100°C | cSt | ASTM D445 | 9.4 | **9.1** | 9.3 | 9.1 |
| Viscosity Index (VI) | Scale | ASTM D2270 | 147 | **122** | 128 | 121 |

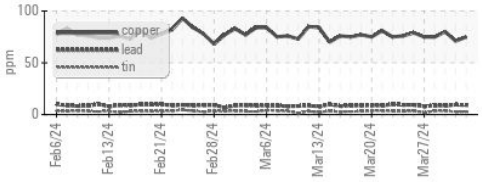
| SAMPLE IMAGES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Color | | | |  | | |
| Bottom | | | |  | | |

## GRAPHS

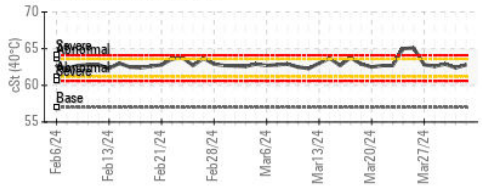
Ferrous Alloys



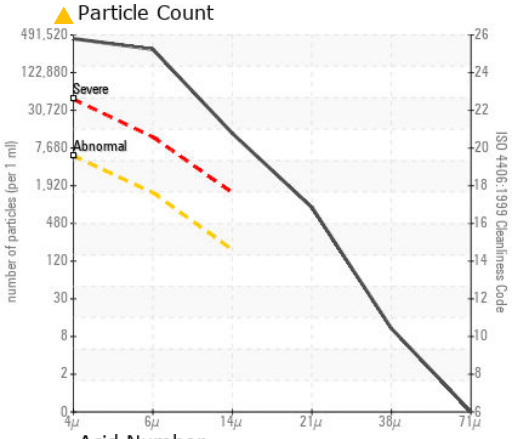

Non-ferrous Metals



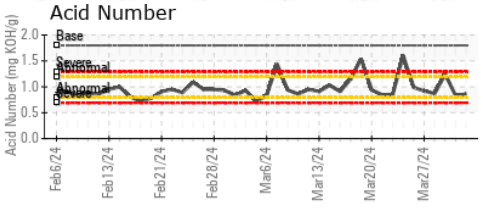

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : WC0929386 **Received** : 02 Apr 2024
**Lab Number** : 06136362 **Tested** : 09 Apr 2024
**Unique Number** : 10955827 **Diagnosed** : 09 Apr 2024 - Jonathan Hester
**Test Package** : IND 2 ( Additional Tests: KF, KV100, PQ, VI )

*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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