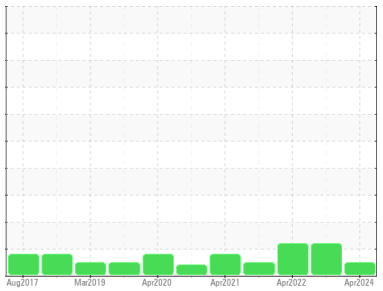
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
## MACHINE 13 (S/N 4428)
Component
**Hydraulic System**
Fluid
**SAFETY-KLEEN PERFORMANCE PLUS HYDRAULIC AW 46 (55 GAL)**

## DIAGNOSIS

**Recommendation**
Resample at the next service interval to monitor.

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

**Contamination**
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

**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 | | **WC0910090** | WC0800150 | WC0668630 |
| Sample Date | | Client Info | | **01 Apr 2024** | 27 Mar 2023 | 07 Apr 2022 |
| Machine Age | mths | Client Info | | **0** | 0 | 0 |
| Oil Age | mths | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **Changed** | Changed | Filtered |
| Sample Status | | | | **NORMAL** | ATTENTION | ATTENTION |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.05 | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >20 | **5** | 6 | 1 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >20 | **<1** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **1** | 0 | <1 |
| Lead | ppm | ASTM D5185m | >20 | **1** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >20 | **1** | <1 | <1 |
| Tin | ppm | ASTM D5185m | >20 | **1** | 0 | 0 |
| Antimony | ppm | ASTM D5185m | | **---** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **<1** | 0 | 0 |

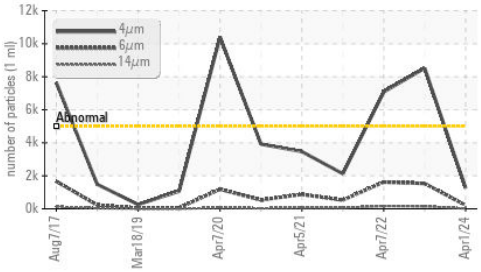
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **0** | 2 | 4 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **2** | 2 | 2 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Magnesium | ppm | ASTM D5185m | | **11** | 23 | 14 |
| Calcium | ppm | ASTM D5185m | 48 | **71** | 75 | 72 |
| Phosphorus | ppm | ASTM D5185m | 340 | **366** | 343 | 309 |
| Zinc | ppm | ASTM D5185m | 430 | **420** | 436 | 418 |
| Sulfur | ppm | ASTM D5185m | | **941** | 1029 | 723 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >15 | **0** | <1 | <1 |
| Sodium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | **4** | 3 | 6 |

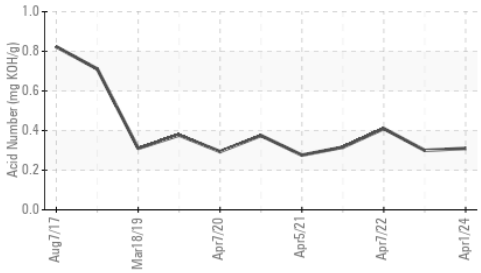
| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | **1261** | 8514 | 7082 |
| Particles >6µm | | ASTM D7647 | >1300 | **219** | 1533 | 1619 |
| Particles >14µm | | ASTM D7647 | >160 | **16** | 143 | 171 |
| Particles >21µm | | ASTM D7647 | >40 | **5** | 47 | 37 |
| Particles >38µm | | ASTM D7647 | >10 | **0** | 2 | 3 |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | **17/15/11** | 20/18/14 | 20/18/15 |

# OIL ANALYSIS REPORT

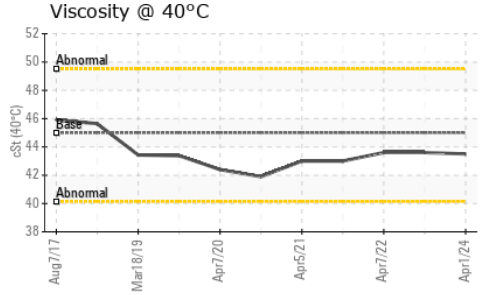
Particle Trend



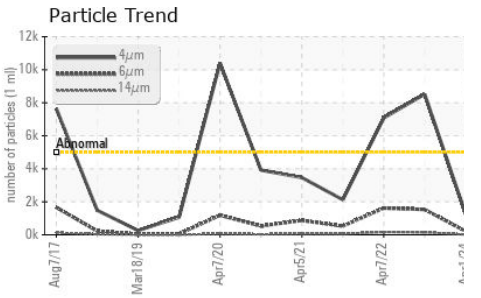

Acid Number




Viscosity @ 40°C




Particle Trend

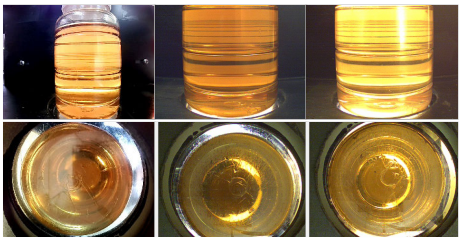



| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | **0.31** | 0.30 | 0.41 |

| 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 | >0.05 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

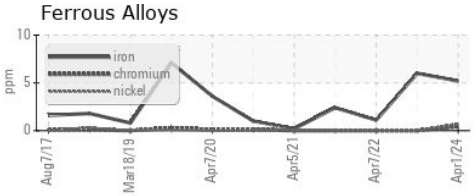
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 45.0 | **43.5** | 43.6 | 43.6 |

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

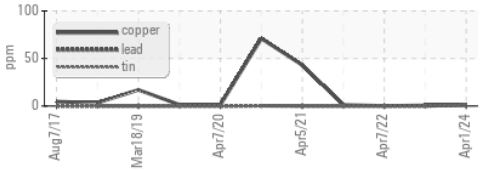


## GRAPHS

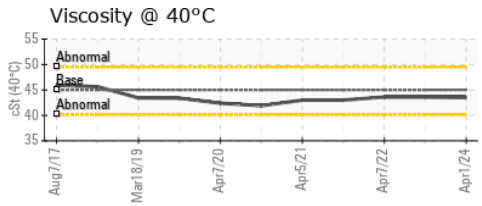
Ferrous Alloys



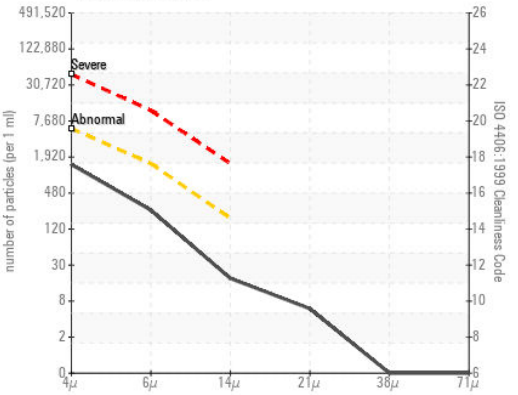

Non-ferrous Metals



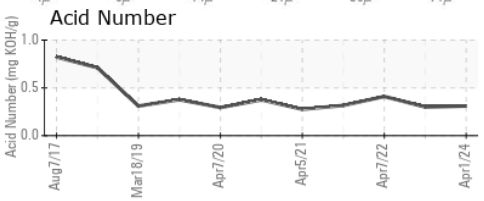

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : WC0910090
**Lab Number** : 06147296
**Unique Number** : 10977374
**Test Package** : IND 2

**Received** : 12 Apr 2024
**Tested** : 15 Apr 2024
**Diagnosed** : 15 Apr 2024 - Wes Davis

*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)*

**Altium Packaging - SAMUELSON - Plant 1302A**
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