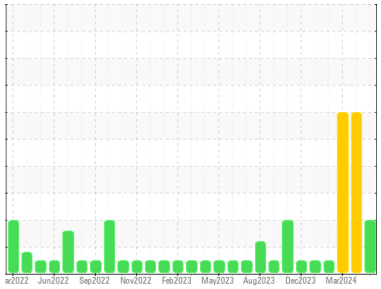
# OIL ANALYSIS REPORT

Sample Rating Trend



**WEAR**

Area
## MELT SHOP - HYDRAULIC
Machine Id
## MELT SHOP EAF INLINE HEATER
Component
**Hydraulic System**
Fluid
**FIRE-RESISTANT FLUID ISO 46 (5 GAL)**

## DIAGNOSIS

**Recommendation**
No corrective action is recommended at this time. Resample at the next service interval to monitor.

**Wear**
The iron level is abnormal.

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

**Fluid Condition**
The pH level of this fluid is within the acceptable limits at 9.0. The condition of the oil is acceptable for the time in service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **RP0042719** | RP0042698 | RP0042616 |
| Sample Date | | Client Info | | **28 Mar 2024** | 12 Mar 2024 | 05 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** | SEVERE | SEVERE |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >20 | ▲ **37** | ▲ 72 | ▲ 186 |
| Chromium | ppm | ASTM D5185m | >20 | **1** | <1 | 1 |
| Nickel | ppm | ASTM D5185m | >20 | **1** | 2 | <1 |
| Titanium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **11** | 11 | 11 |
| Lead | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >20 | **<1** | <1 | <1 |
| Tin | ppm | ASTM D5185m | >20 | **1** | <1 | 1 |
| Vanadium | ppm | ASTM D5185m | | **1** | 1 | 1 |
| Cadmium | ppm | ASTM D5185m | | **<1** | 4 | <1 |

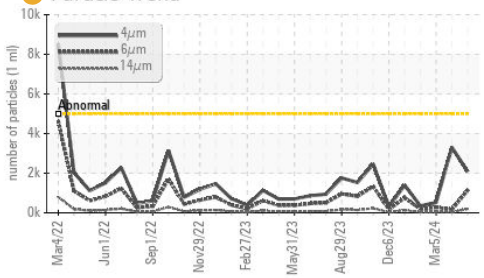
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 5 | **14** | 3 | 5 |
| Barium | ppm | ASTM D5185m | 5 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 5 | **<1** | 0 | 0 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 5 | **1** | 2 | <1 |
| Calcium | ppm | ASTM D5185m | 50 | **11** | 15 | 9 |
| Phosphorus | ppm | ASTM D5185m | 175 | **7** | 7 | 4 |
| Zinc | ppm | ASTM D5185m | 62 | **11** | 104 | 3 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >15 | **4** | 4 | 3 |
| Sodium | ppm | ASTM D5185m | | **53** | 22 | 32 |
| Potassium | ppm | ASTM D5185m | >20 | **10** | 9 | 10 |
| Water | % | ASTM D6304 | >55 | **30.9** | 45.5 | 42.7 |
| ppm Water | ppm | ASTM D6304 | >55000 | **309000** | 455000 | 427000 |

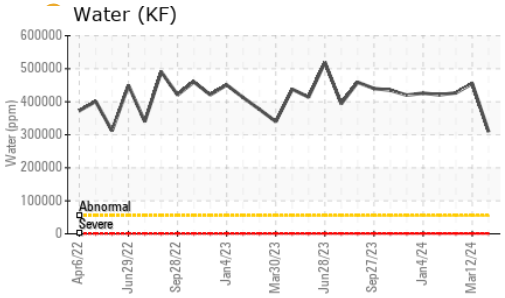
| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | **2088** | 3304 | 522 |
| Particles >6µm | | ASTM D7647 | >1300 | **1137** | 166 | 284 |
| Particles >14µm | | ASTM D7647 | >160 | ● **194** | 28 | 48 |
| Particles >21µm | | ASTM D7647 | >40 | ● **65** | 10 | 16 |
| Particles >38µm | | ASTM D7647 | >10 | **10** | 1 | 3 |
| Particles >71µm | | ASTM D7647 | >3 | **1** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | ● **18/17/15** | 19/15/12 | 16/15/13 |

# OIL ANALYSIS REPORT

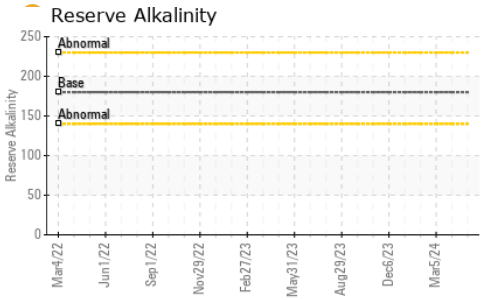
Particle Trend



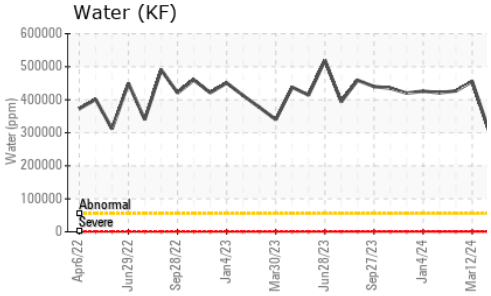

Water (KF)



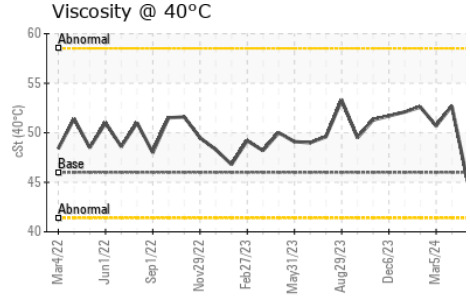

Reserve Alkalinity




Water (KF)




Viscosity @ 40°C



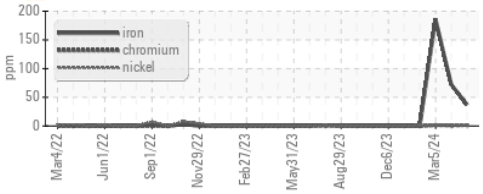

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **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 | >55 | **0.2%** | 0.2% | 0.2% |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| pH | Scale 0-14 | ASTM D1287 | | **9.00** | 11.0 | 10.0 |
| Visc @ 40°C | cSt | ASTM D445 | 46 | **45.1** | 52.7 | 50.7 |

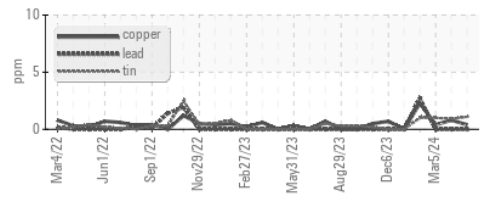
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | | | | |
| Bottom | | | | | |

## GRAPHS

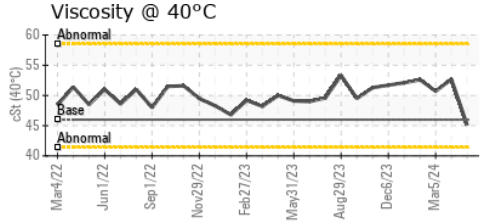
Ferrous Alloys



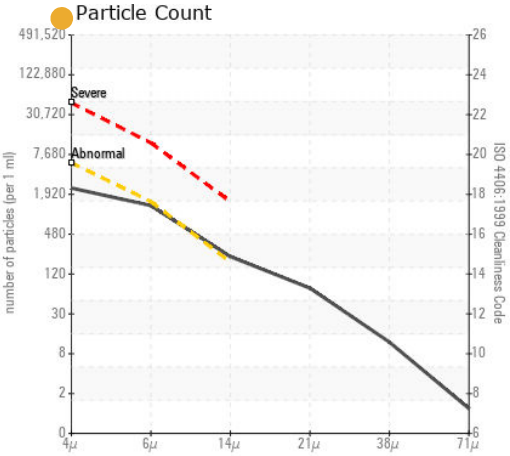

Non-ferrous Metals



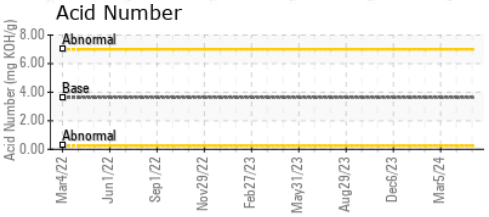

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : RP0042719
**Lab Number** : 06134117
**Unique Number** : 10953582
**Test Package** : IND 2 ( Additional Tests: pH, ReserveAlk )

**Received** : 29 Mar 2024
**Tested** : 03 Apr 2024
**Diagnosed** : 03 Apr 2024 - Jonathan Hester

*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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Report Id: OUTCALAL [WUSCAR] 06134117 (Generated: 04/03/2024 15:30:44) Rev: 1

Submitted By: DALE ROBINSON