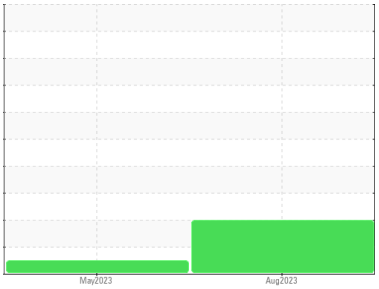
# PROBLEM SUMMARY

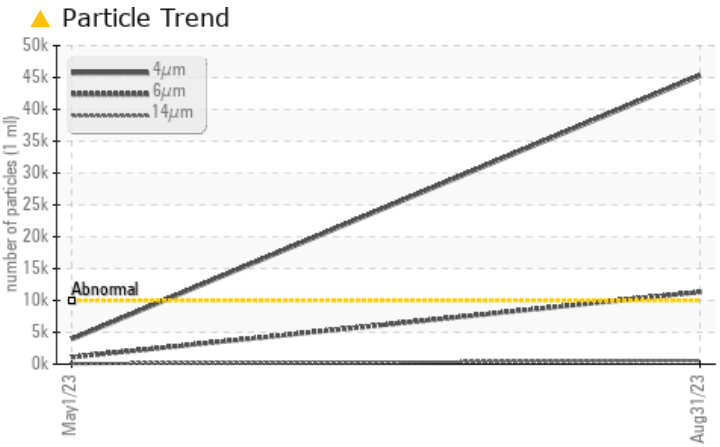
Sample Rating Trend




ISO

Area
**[3160795]**
Machine Id
**SC-08 (S/N V2696)**
Component
**Refrigeration Compressor**
Fluid
**FES 4 (--- GAL)**

## COMPONENT CONDITION SUMMARY




## RECOMMENDATION

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

## PROBLEMATIC TEST RESULTS

| | | | | | | |
|---|---|---|---|---|---|---|
| Sample Status | | | | **ABNORMAL** | NORMAL | --- |
| Particles >4µm | | ASTM D7647 | >10000 | ▲ **45257** | 3914 | --- |
| Particles >6µm | | ASTM D7647 | >2500 | ▲ **11315** | 1090 | --- |
| Particles >14µm | | ASTM D7647 | >320 | ▲ **531** | 77 | --- |
| Particles >21µm | | ASTM D7647 | >80 | ▲ **105** | 20 | --- |
| Oil Cleanliness | | ISO 4406 (c) | >20/18/15 | ▲ **23/21/16** | 19/17/13 | --- |

**Customer Id:** USCMCD
**Sample No.:** USP244465
**Lab Number:** 05979807
**Test Package:** IND 2

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
Doug Bogart +1 (800)237-1369 x4016
dougb@wearcheckusa.com

*To change component or sample information:*
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

## RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|---|---|---|---|---|
| Change Filter | --- | --- | ? | We recommend you service the filters on this component. |

## HISTORICAL DIAGNOSIS

**01 May 2023 Diag: Doug Bogart**

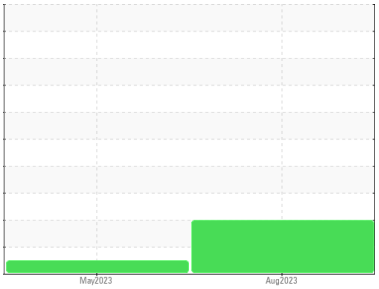
NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

**view report**

# OIL ANALYSIS REPORT

Sample Rating Trend




ISO

Area
**[3160795]**
Machine Id
**SC-08 (S/N V2696)**
Component
**Refrigeration Compressor**
Fluid
**FES 4 (--- 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 | | **USP244465** | USP244466 | --- |
| Sample Date | | Client Info | | **31 Aug 2023** | 01 May 2023 | --- |
| Machine Age | hrs | Client Info | | **6603** | 5331 | --- |
| Oil Age | hrs | Client Info | | **6603** | 5331 | --- |
| Oil Changed | | Client Info | | **N/A** | N/A | --- |
| Sample Status | | | | **ABNORMAL** | NORMAL | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >8 | **7** | 16 | --- |
| Chromium | ppm | ASTM D5185m | >2 | **0** | 0 | --- |
| Nickel | ppm | ASTM D5185m | | **<1** | 0 | --- |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | --- |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | --- |
| Aluminum | ppm | ASTM D5185m | >3 | **0** | 0 | --- |
| Lead | ppm | ASTM D5185m | >2 | **<1** | 0 | --- |
| Copper | ppm | ASTM D5185m | >8 | **2** | <1 | --- |
| Tin | ppm | ASTM D5185m | >4 | **0** | 0 | --- |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **0** | 0 | --- |
| Barium | ppm | ASTM D5185m | | **0** | 0 | --- |
| Molybdenum | ppm | ASTM D5185m | | **0** | 0 | --- |
| Manganese | ppm | ASTM D5185m | | **0** | <1 | --- |
| Magnesium | ppm | ASTM D5185m | | **0** | <1 | --- |
| Calcium | ppm | ASTM D5185m | | **3** | 0 | --- |
| Phosphorus | ppm | ASTM D5185m | | **0** | 1 | --- |
| Zinc | ppm | ASTM D5185m | | **4** | 2 | --- |
| Sulfur | ppm | ASTM D5185m | | **0** | 3 | --- |

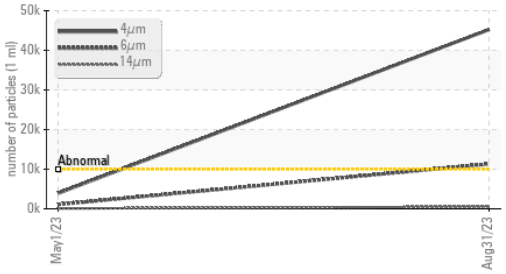
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >15 | **<1** | <1 | --- |
| Sodium | ppm | ASTM D5185m | | **0** | <1 | --- |
| Potassium | ppm | ASTM D5185m | >20 | **<1** | 0 | --- |
| Water | % | ASTM D6304 | >0.01 | **0.001** | 0.002 | --- |
| ppm Water | ppm | ASTM D6304 | >100 | **10.1** | 19.5 | --- |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >10000 | ▲ **45257** | 3914 | --- |
| Particles >6µm | | ASTM D7647 | >2500 | ▲ **11315** | 1090 | --- |
| Particles >14µm | | ASTM D7647 | >320 | ▲ **531** | 77 | --- |
| Particles >21µm | | ASTM D7647 | >80 | ▲ **105** | 20 | --- |
| Particles >38µm | | ASTM D7647 | >20 | **2** | 0 | --- |
| Particles >71µm | | ASTM D7647 | >4 | **0** | 0 | --- |
| Oil Cleanliness | | ISO 4406 (c) | >20/18/15 | ▲ **23/21/16** | 19/17/13 | --- |

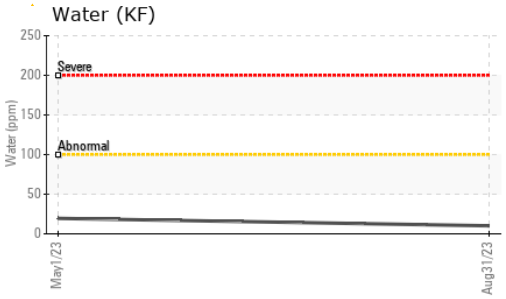
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D974 | | **0.013** | 0.015 | --- |

# OIL ANALYSIS REPORT

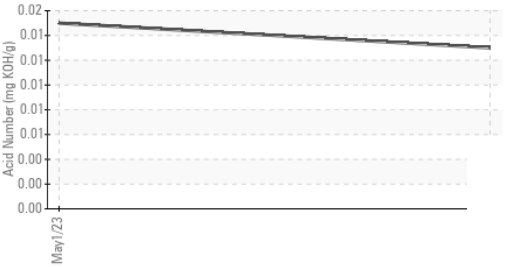
Particle Trend



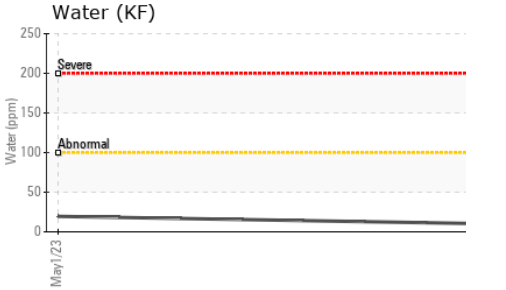

Water (KF)



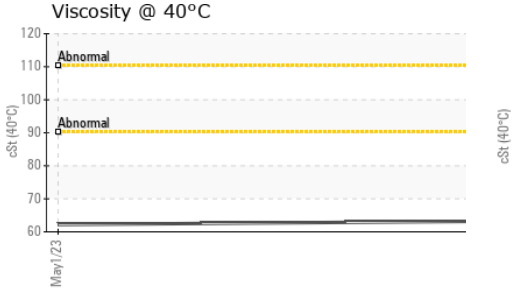

Acid Number




Water (KF)

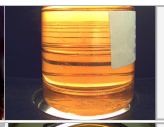
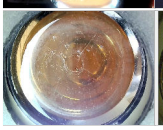
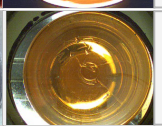



Viscosity @ 40°C



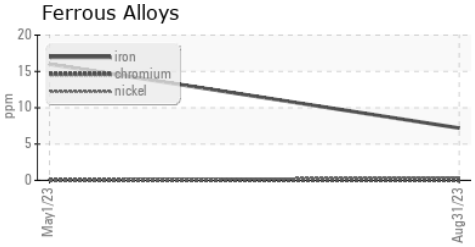

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Debris | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Appearance | scalar | *Visual | NORML | **NORML** | NORML | --- |
| Odor | scalar | *Visual | NORML | **NORML** | NORML | --- |
| Emulsified Water | scalar | *Visual | >0.01 | **NEG** | NEG | --- |
| Free Water | scalar | *Visual | | **NEG** | NEG | --- |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | | **63.2** | 62.2 | --- |

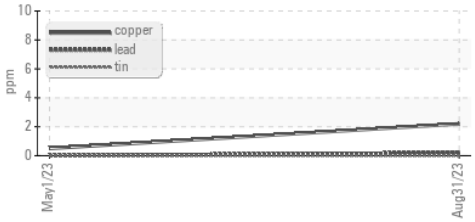
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  |  | *no image* |
| Bottom | | |  |  | *no image* |

GRAPHS

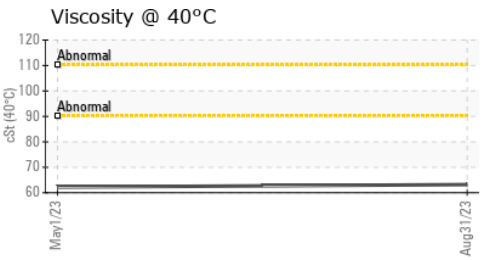
Ferrous Alloys



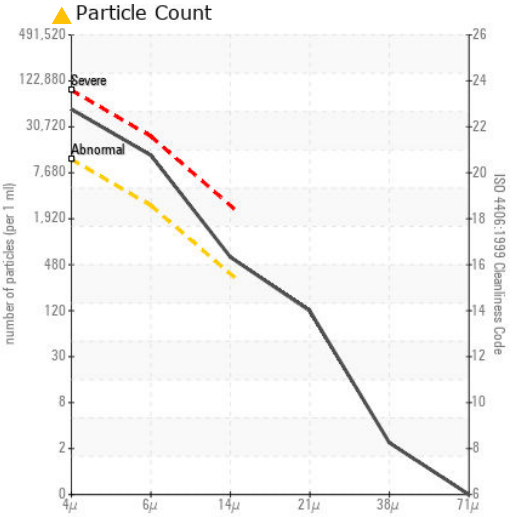

Non-ferrous Metals



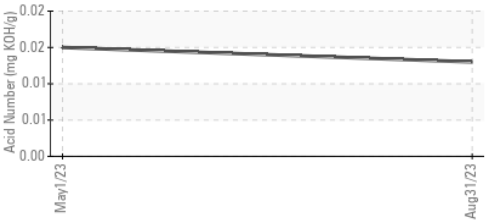

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : USP244465
**Lab Number** : 05979807
**Unique Number** : 10697102
**Test Package** : IND 2

**Received** : 16 Oct 2023
**Diagnosed** : 17 Oct 2023
**Diagnostician** : Doug Bogart

**UNITED STATES COLD STORAGE - USCMED**
1275 MEDLINE PLACE
MCDONOUGH, GA
US 30253
Contact: Service Manager

*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)*

T:
F: