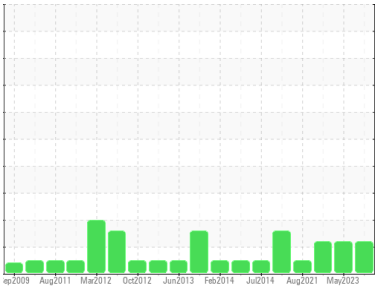
# PROBLEM SUMMARY

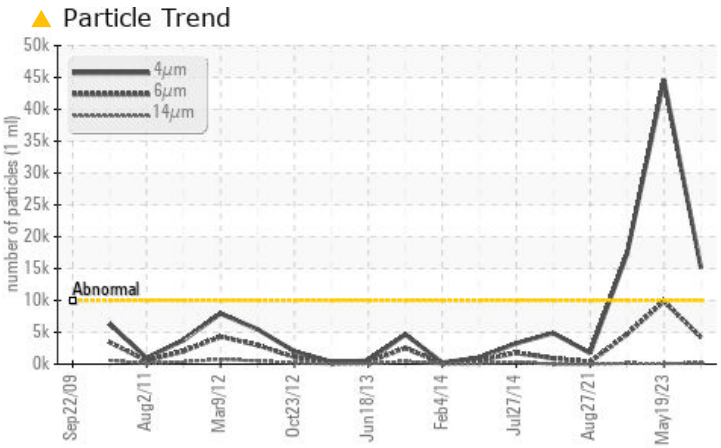
Sample Rating Trend



ISO

Machine Id
## FES HC-1 (S/N Z0121)
Component
**Refrigeration Compressor**
Fluid
**USPI 1009-68 SC (165 GAL)**

## COMPONENT CONDITION SUMMARY




## RECOMMENDATION

Resample at the next service interval to monitor.

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | ATTENTION | ABNORMAL | ATTENTION |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >10000 | ▲ **15129** | ▲ 44574 | ▲ 17320 |
| Particles >6µm | | ASTM D7647 | >2500 | ▲ **4216** | ▲ 9858 | ▲ 4694 |
| Oil Cleanliness | | ISO 4406 (c) | >20/18/15 | ▲ **21/19/14** | ▲ 23/20/14 | ▲ 21/19/14 |

**Customer Id:** TYSCHE
**Sample No.:** USP0000482
**Lab Number:** 05932142
**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

*There are no recommended actions for this sample.*

## HISTORICAL DIAGNOSIS

**19 May 2023 Diag: Doug Bogart**

ISO

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. There is a trace of moisture present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

**08 Apr 2023 Diag: Doug Bogart**

ISO

Resample at the next service interval to monitor.All component wear rates are normal. There is a moderate 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

**27 Aug 2021 Diag: Doug Bogart**

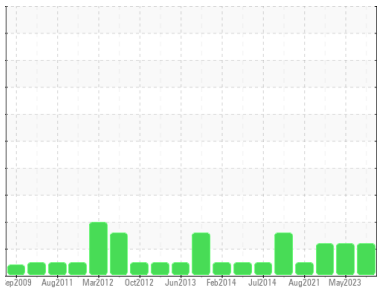
NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the component. The amount and size of particulates present in the system is acceptable. 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

Machine Id
## FES HC-1 (S/N Z0121)
Component
**Refrigeration Compressor**
Fluid
**USPI 1009-68 SC (165 GAL)**

## DIAGNOSIS

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

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

**Contamination**
There is a moderate amount of silt (particulates < 14 microns in size) 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 | | **USP0000482** | USP243758 | USP242066 |
| Sample Date | | Client Info | | **22 Aug 2023** | 19 May 2023 | 08 Apr 2023 |
| Machine Age | hrs | Client Info | | **0** | 5990 | 5613 |
| Oil Age | hrs | Client Info | | **0** | 1071 | 694 |
| Oil Changed | | Client Info | | **N/A** | Not Changd | Not Changd |
| Sample Status | | | | **ATTENTION** | ABNORMAL | ATTENTION |

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

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | **0** | <1 | 1 |
| Calcium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Phosphorus | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Zinc | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Sulfur | ppm | ASTM D5185m | 50 | **32** | 38 | 0 |

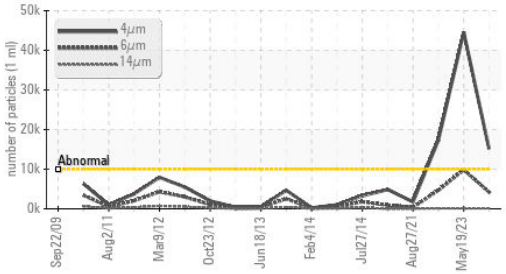
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >15 | **1** | <1 | 1 |
| Sodium | ppm | ASTM D5185m | | **0** | <1 | <1 |
| Potassium | ppm | ASTM D5185m | >20 | **0** | 0 | 1 |
| Water | % | ASTM D6304 | >0.01 | **0.009** | 0.010 | 0.003 |
| ppm Water | ppm | ASTM D6304 | >100 | **91.1** | 103.6 | 29.3 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >10000 | ▲ **15129** | ▲ 44574 | ▲ 17320 |
| Particles >6µm | | ASTM D7647 | >2500 | ▲ **4216** | ▲ 9858 | ▲ 4694 |
| Particles >14µm | | ASTM D7647 | >320 | **131** | 103 | 125 |
| Particles >21µm | | ASTM D7647 | >80 | **17** | 12 | 15 |
| Particles >38µm | | ASTM D7647 | >20 | **2** | 1 | 0 |
| Particles >71µm | | ASTM D7647 | >4 | **1** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >20/18/15 | ▲ **21/19/14** | ▲ 23/20/14 | ▲ 21/19/14 |

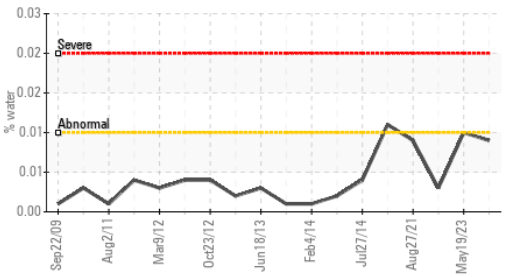
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D974 | 0.005 | **0.014** | 0.014 | 0.014 |

# OIL ANALYSIS REPORT

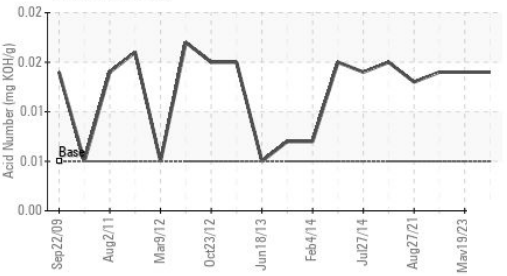
Particle Trend



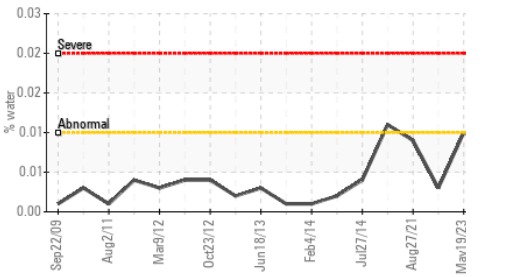

Water



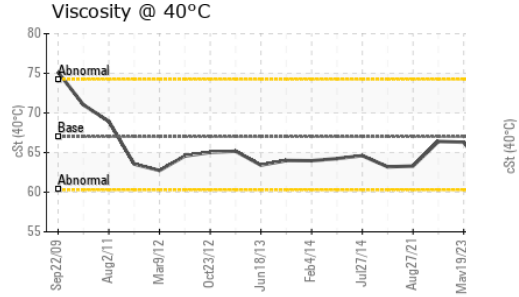

Acid Number




Water

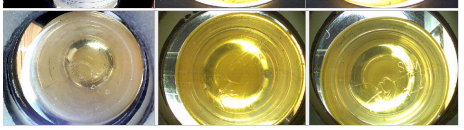



Viscosity @ 40°C



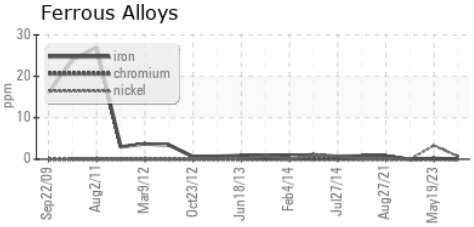

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Debris | scalar | *Visual | NONE | **NONE** | LIGHT | LIGHT |
| 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 | >0.01 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 67 | **62.3** | 66.3 | 66.4 |

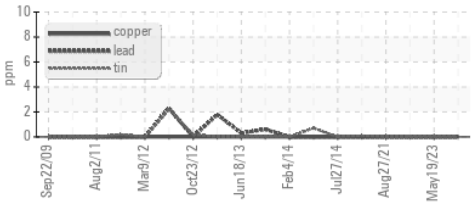
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

## GRAPHS

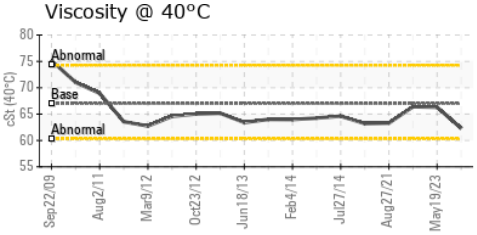
Ferrous Alloys



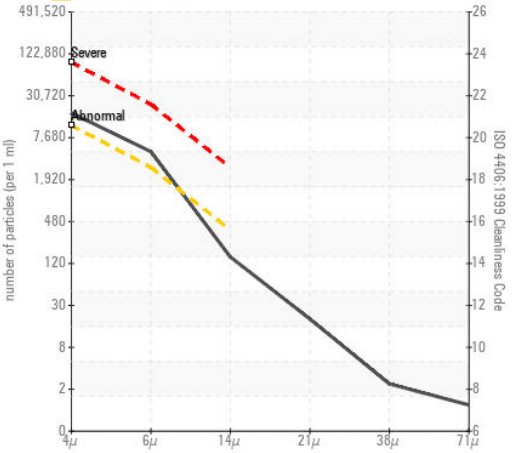

Non-ferrous Metals



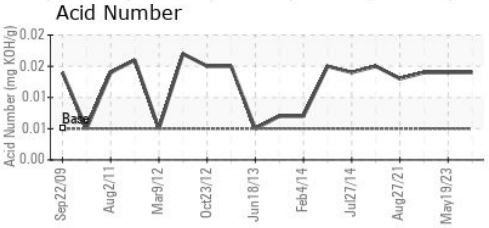

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : USP0000482
**Lab Number** : 05932142
**Unique Number** : 10617413
**Test Package** : IND 2

**Received** : 23 Aug 2023
**Diagnosed** : 24 Aug 2023
**Diagnostician** : Doug Bogart

**LOPEZ FOODS -CHEROKEE-USP**
1300 SOUTH LAKE STREET
CHEROKEE, IA
US 51012
Contact: ROD STOWATER

*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: (712)225-6558
F: (712)225-6556