



# PROBLEM SUMMARY

Sample Rating Trend



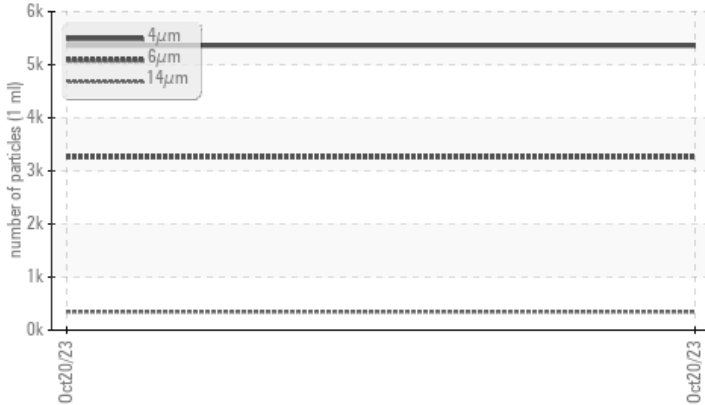
ISO



Machine Id  
**KAESER 8668632 - CHILLER UNIT A**  
 Component  
**Compressor**  
 Fluid  
**KAESER SIGMA (OEM) M-460 (--- GAL)**

## COMPONENT CONDITION SUMMARY

### ▲ Particle Trend



## RECOMMENDATION

The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

## PROBLEMATIC TEST RESULTS

| Sample Status   |              |           | <b>ABNORMAL</b>   | --- | --- |
|-----------------|--------------|-----------|-------------------|-----|-----|
| Particles >6µm  | ASTM D7647   | >1300     | ▲ <b>3261</b>     | --- | --- |
| Particles >14µm | ASTM D7647   | >80       | ▲ <b>346</b>      | --- | --- |
| Particles >21µm | ASTM D7647   | >20       | ▲ <b>69</b>       | --- | --- |
| Particles >38µm | ASTM D7647   | >4        | ▲ <b>5</b>        | --- | --- |
| Oil Cleanliness | ISO 4406 (c) | >--/17/13 | ▲ <b>20/19/16</b> | --- | --- |

Customer Id: STANEWOH  
 Sample No.: KC122133  
 Lab Number: 06017382  
 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:  
 Jonathan Hester +1 919-379-4092 x4092  
[jhester@wearcheckusa.com](mailto:jhester@wearcheckusa.com)

To change component or sample information:  
 Customer Service +1 1-800-237-1369  
[customerservice@wearcheck.com](mailto:customerservice@wearcheck.com)

## RECOMMENDED ACTIONS

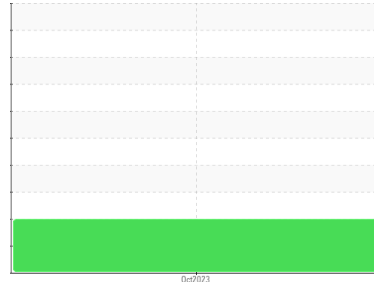
*There are no recommended actions for this sample.*

## HISTORICAL DIAGNOSIS



# OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id  
**KAESER 8668632 - CHILLER UNIT A**  
 Component  
**Compressor**  
 Fluid  
**KAESER SIGMA (OEM) M-460 (--- GAL)**

## DIAGNOSIS

### ▲ Recommendation

The filter change at the time of sampling has been noted. 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     | <b>KC122133</b>    | ---      | ---      |
| Sample Date   | Client Info     | <b>20 Oct 2023</b> | ---      | ---      |
| Machine Age   | hrs Client Info | <b>2830</b>        | ---      | ---      |
| Oil Age       | hrs Client Info | <b>0</b>           | ---      | ---      |
| Oil Changed   | Client Info     | <b>N/A</b>         | ---      | ---      |
| Sample Status |                 | <b>ABNORMAL</b>    | ---      | ---      |

## WEAR METALS

| method                   | limit/base | current  | history1 | history2 |
|--------------------------|------------|----------|----------|----------|
| Iron ppm ASTM D5185m     | >50        | <b>0</b> | ---      | ---      |
| Chromium ppm ASTM D5185m | >10        | <b>0</b> | ---      | ---      |
| Nickel ppm ASTM D5185m   | >3         | <b>0</b> | ---      | ---      |
| Titanium ppm ASTM D5185m | >3         | <b>0</b> | ---      | ---      |
| Silver ppm ASTM D5185m   | >2         | <b>0</b> | ---      | ---      |
| Aluminum ppm ASTM D5185m | >10        | <b>0</b> | ---      | ---      |
| Lead ppm ASTM D5185m     | >10        | <b>0</b> | ---      | ---      |
| Copper ppm ASTM D5185m   | >50        | <b>9</b> | ---      | ---      |
| Tin ppm ASTM D5185m      | >10        | <b>0</b> | ---      | ---      |
| Vanadium ppm ASTM D5185m |            | <b>0</b> | ---      | ---      |
| Cadmium ppm ASTM D5185m  |            | <b>0</b> | ---      | ---      |

## ADDITIVES

| method                     | limit/base | current   | history1 | history2 |
|----------------------------|------------|-----------|----------|----------|
| Boron ppm ASTM D5185m      | 0          | <b>0</b>  | ---      | ---      |
| Barium ppm ASTM D5185m     | 90         | <b>0</b>  | ---      | ---      |
| Molybdenum ppm ASTM D5185m | 0          | <b>0</b>  | ---      | ---      |
| Manganese ppm ASTM D5185m  |            | <b>0</b>  | ---      | ---      |
| Magnesium ppm ASTM D5185m  | 100        | <b>19</b> | ---      | ---      |
| Calcium ppm ASTM D5185m    | 0          | <b>0</b>  | ---      | ---      |
| Phosphorus ppm ASTM D5185m | 0          | <b>0</b>  | ---      | ---      |
| Zinc ppm ASTM D5185m       | 0          | <b>2</b>  | ---      | ---      |

## CONTAMINANTS

| method                    | limit/base | current      | history1 | history2 |
|---------------------------|------------|--------------|----------|----------|
| Silicon ppm ASTM D5185m   | >25        | <b>0</b>     | ---      | ---      |
| Sodium ppm ASTM D5185m    |            | <b>7</b>     | ---      | ---      |
| Potassium ppm ASTM D5185m | >20        | <b>0</b>     | ---      | ---      |
| Water % ASTM D6304        | >0.05      | <b>0.013</b> | ---      | ---      |
| ppm Water ppm ASTM D6304  | >500       | <b>133</b>   | ---      | ---      |

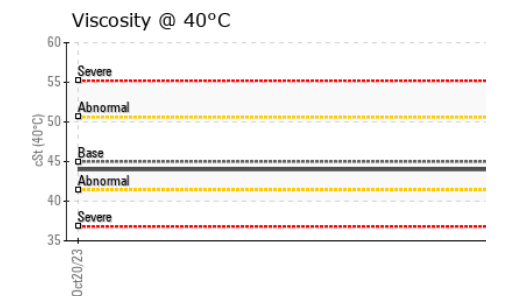
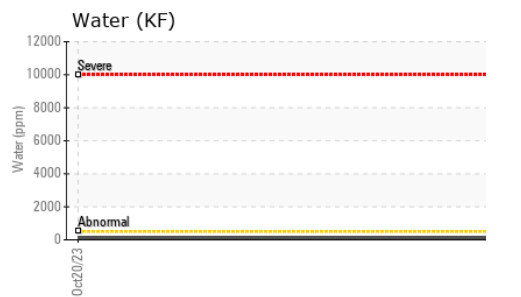
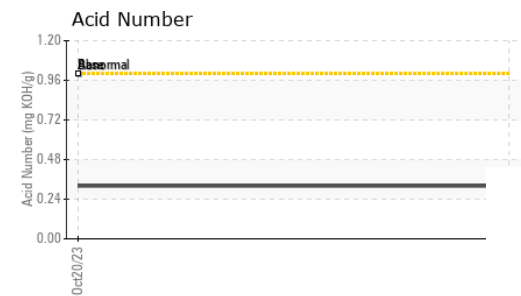
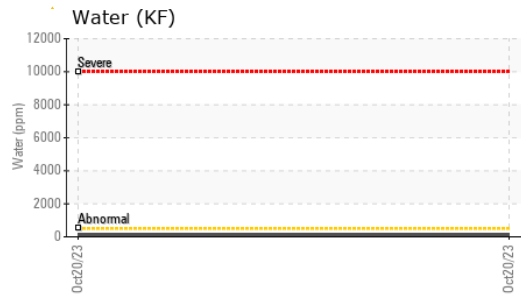
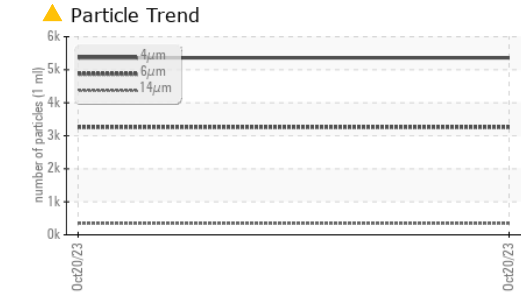
## FLUID CLEANLINESS

| method                       | limit/base | current           | history1 | history2 |
|------------------------------|------------|-------------------|----------|----------|
| Particles >4µm ASTM D7647    |            | <b>5360</b>       | ---      | ---      |
| Particles >6µm ASTM D7647    | >1300      | ▲ <b>3261</b>     | ---      | ---      |
| Particles >14µm ASTM D7647   | >80        | ▲ <b>346</b>      | ---      | ---      |
| Particles >21µm ASTM D7647   | >20        | ▲ <b>69</b>       | ---      | ---      |
| Particles >38µm ASTM D7647   | >4         | ▲ <b>5</b>        | ---      | ---      |
| Particles >71µm ASTM D7647   | >3         | <b>0</b>          | ---      | ---      |
| Oil Cleanliness ISO 4406 (c) | >--/17/13  | ▲ <b>20/19/16</b> | ---      | ---      |

## FLUID DEGRADATION

| method                               | limit/base | current     | history1 | history2 |
|--------------------------------------|------------|-------------|----------|----------|
| Acid Number (AN) mg KOH/g ASTM D8045 | 1.0        | <b>0.32</b> | ---      | ---      |

# OIL ANALYSIS REPORT



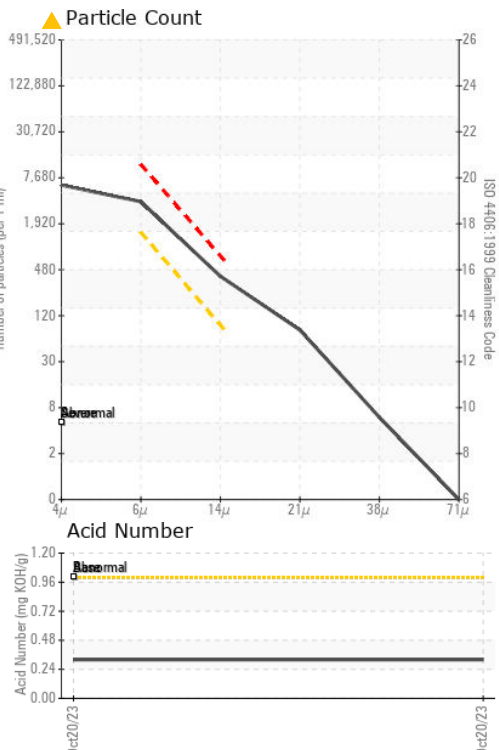
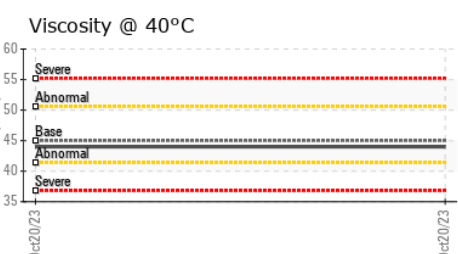
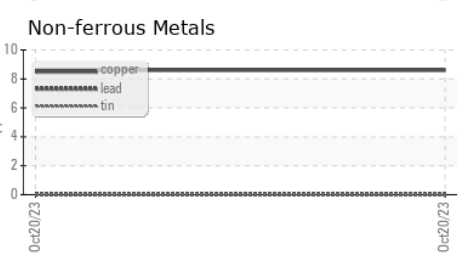
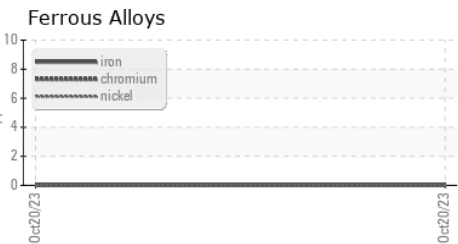
| VISUAL           | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal      | scalar | *Visual    | NONE    | NONE     | ---      |
| Yellow Metal     | scalar | *Visual    | NONE    | NONE     | ---      |
| Precipitate      | scalar | *Visual    | NONE    | NONE     | ---      |
| Silt             | scalar | *Visual    | NONE    | NONE     | ---      |
| Debris           | scalar | *Visual    | NONE    | LIGHT    | ---      |
| Sand/Dirt        | scalar | *Visual    | NONE    | NONE     | ---      |
| Appearance       | scalar | *Visual    | NORML   | NORML    | ---      |
| Odor             | scalar | *Visual    | NORML   | NORML    | ---      |
| Emulsified Water | scalar | *Visual    | >0.05   | NEG      | ---      |
| Free Water       | scalar | *Visual    |         | NEG      | ---      |

| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| Visc @ 40°C      | cSt    | ASTM D445  | 45      | 44.0     | ---      |

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

|        |  |  |  |          |          |
|--------|--|--|--|----------|----------|
| Color  |  |  |  | no image | no image |
| Bottom |  |  |  | no image | no image |

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : KC122133 **Received** : 24 Nov 2023  
**Lab Number** : 06017382 **Diagnosed** : 29 Nov 2023  
**Unique Number** : 10756526 **Diagnostician** : Jonathan Hester  
**Test Package** : IND 2

**STACK INFRASTRUCTURE**  
 7300 SAUDER RD  
 NEW ALBANY, OH  
 US 43054  
 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)