# KAESER COMPRESSORS
Built for a lifetime.™

# OIL ANALYSIS REPORT

**Sample Rating Trend**



Oct2021    Feb2023    Jul2024
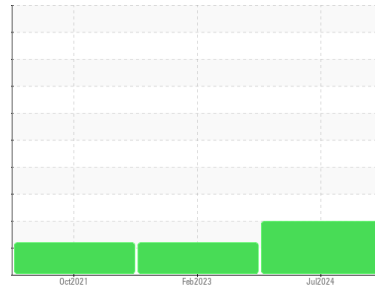
## WATER



Machine Id
## 5977212 (S/N 1447)
Component
**Compressor**
Fluid
**KAESER SIGMA (OEM) M-460 (--- GAL)**

## DIAGNOSIS

⚠️ **Recommendation**
The filter change at the time of sampling has been noted. We were unable to perform a particle count due to a high concentration of particles present in this sample. We advise that you stop the unit and follow the water drain-off procedure for this component. We recommend an early resample in 500 hours to monitor this condition.

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

⚠️ **Contamination**
Moderate concentration of visible dirt/debris present in the oil. There is a moderate concentration of water present in the oil.

**Fluid Condition**
The AN level is acceptable for this fluid.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **KCPA014373** | KCP54729 | KCP11944 |
| Sample Date | | Client Info | | **01 Jul 2024** | 20 Feb 2023 | 22 Oct 2021 |
| Machine Age | hrs | Client Info | | **7884** | 5248 | 2222 |
| Oil Age | hrs | Client Info | | **2636** | 3000 | 2222 |
| Oil Changed | | Client Info | | **Not Changd** | Changed | Changed |
| Sample Status | | | | **ABNORMAL** | ATTENTION | ABNORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >50 | **0** | <1 | <1 |
| Chromium | ppm | ASTM D5185m | >10 | **0** | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >10 | **0** | <1 | 0 |
| Lead | ppm | ASTM D5185m | >10 | **<1** | <1 | <1 |
| Copper | ppm | ASTM D5185m | >50 | **4** | 4 | 3 |
| Tin | ppm | ASTM D5185m | >10 | **0** | 0 | 0 |
| Antimony | ppm | ASTM D5185m | | **---** | --- | 0 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **0** | 0 | <1 |
| Barium | ppm | ASTM D5185m | 90 | **0** | <1 | 0 |
| Molybdenum | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Manganese | ppm | ASTM D5185m | | **0** | 0 | <1 |
| Magnesium | ppm | ASTM D5185m | 100 | **<1** | 20 | 46 |
| Calcium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Phosphorus | ppm | ASTM D5185m | 0 | **2** | 2 | 1 |
| Zinc | ppm | ASTM D5185m | 0 | **6** | 8 | 0 |
| Sulfur | ppm | ASTM D5185m | 23500 | **21303** | 18429 | 17235 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **<1** | <1 | 0 |
| Sodium | ppm | ASTM D5185m | | **2** | <1 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | **0** | <1 | 0 |
| Water | % | ASTM D6304 | >0.05 | ⚠️ **0.640** | 0.014 | 0.016 |
| ppm Water | ppm | ASTM D6304 | >500 | ⚠️ **6400** | 147.4 | 169.8 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | | **---** | 5769 | 11377 |
| Particles >6µm | | ASTM D7647 | >1300 | **---** | 1158 | ⚠️ 4505 |
| Particles >14µm | | ASTM D7647 | >80 | **---** | ⬤ 100 | ⚠️ 371 |
| Particles >21µm | | ASTM D7647 | >20 | **---** | ⬤ 40 | ⚠️ 42 |
| Particles >38µm | | ASTM D7647 | >4 | **---** | 2 | 1 |
| Particles >71µm | | ASTM D7647 | >3 | **---** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >--/17/13 | **---** | ⬤ 20/17/14 | ⚠️ 19/16 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 1.0 | **0.35** | 0.34 | --- |

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## Water (KF)



## Acid Number



## Viscosity @ 40°C
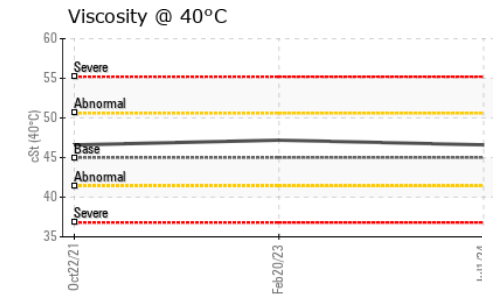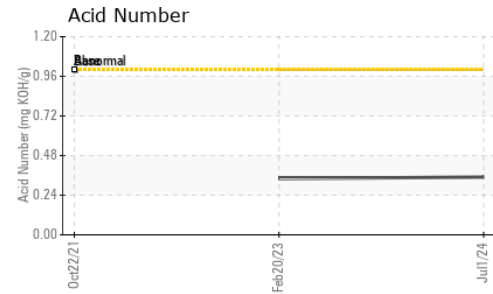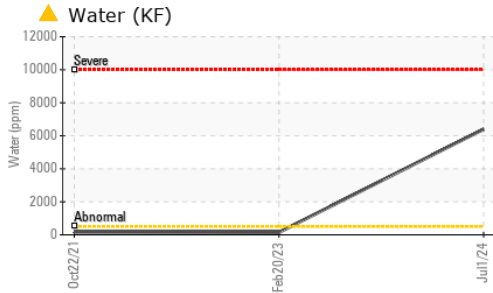


| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 45 | **46.6** | 47.2 | 46.6 |

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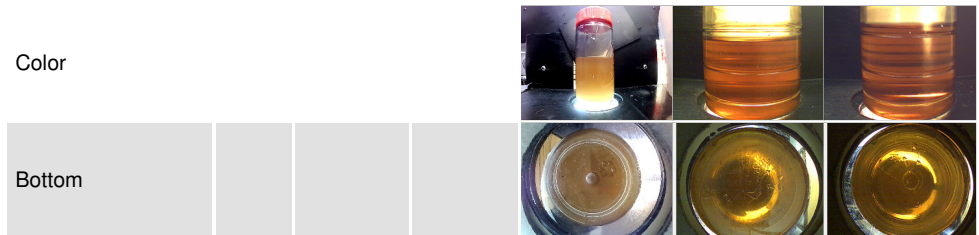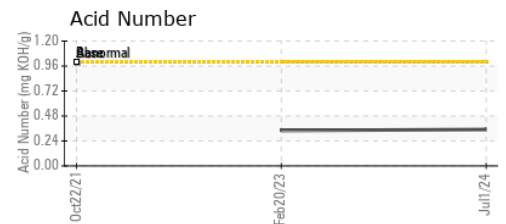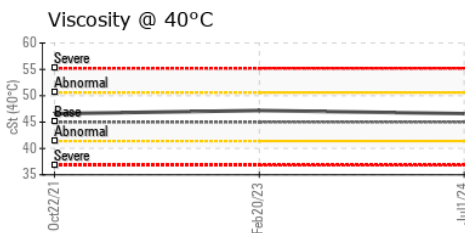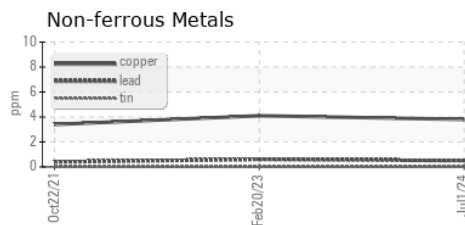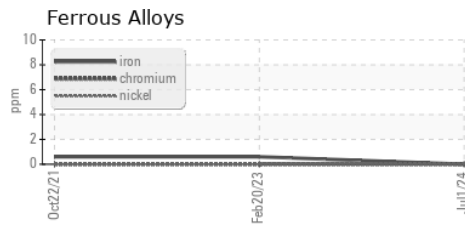
## GRAPHS

### Ferrous Alloys



### Non-ferrous Metals



### Viscosity @ 40°C



### Acid Number

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY — Certificate L2367

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