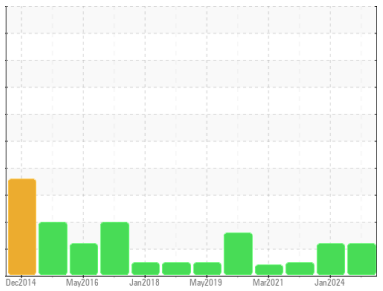
KAESER COMPRESSORS
Built for a lifetime.

# OIL ANALYSIS REPORT

Sample Rating Trend




ISO

Machine Id
## KAESER SM 10 4449147 (S/N 1289)
Component
**Compressor**
Fluid
**KAESER SIGMA (OEM) S-460 (--- QTS)**

## DIAGNOSIS

**Recommendation**
No corrective action is recommended at this time. Oil and 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 moderate 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 | | **KCPA019421** | KCPA008858 | KCP36294 |
| Sample Date | | Client Info | | **18 Jun 2024** | 11 Jan 2024 | 04 Oct 2021 |
| Machine Age | hrs | Client Info | | **55107** | 52929 | 39730 |
| Oil Age | hrs | Client Info | | **2278** | 0 | 6989 |
| Oil Changed | | Client Info | | **Changed** | N/A | Changed |
| Sample Status | | | | **ATTENTION** | ATTENTION | NORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >50 | **<1** | <1 | <1 |
| Chromium | ppm | ASTM D5185m | >10 | **<1** | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >3 | **<1** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >3 | **<1** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >2 | **<1** | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >10 | **3** | 1 | 2 |
| Lead | ppm | ASTM D5185m | >10 | **<1** | 0 | <1 |
| Copper | ppm | ASTM D5185m | >50 | **17** | 14 | 18 |
| Tin | ppm | ASTM D5185m | >10 | **<1** | 0 | 0 |
| Antimony | ppm | ASTM D5185m | | **---** | --- | <1 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **<1** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **0** | 0 | <1 |
| Barium | ppm | ASTM D5185m | 90 | **1** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Manganese | ppm | ASTM D5185m | | **<1** | 0 | <1 |
| Magnesium | ppm | ASTM D5185m | 90 | **2** | 15 | 14 |
| Calcium | ppm | ASTM D5185m | 2 | **0** | <1 | 0 |
| Phosphorus | ppm | ASTM D5185m | | **3** | 11 | 2 |
| Zinc | ppm | ASTM D5185m | | **17** | 4 | 38 |
| Sulfur | ppm | ASTM D5185m | | **18400** | 18244 | 16524 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **<1** | <1 | 0 |
| Sodium | ppm | ASTM D5185m | | **0** | 4 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | **2** | 1 | 3 |
| Water | % | ASTM D6304 | >0.05 | **0.006** | 0.006 | 0.011 |
| ppm Water | ppm | ASTM D6304 | >500 | **64** | 60 | 116.5 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | | **6076** | 4254 | 1970 |
| Particles >6µm | | ASTM D7647 | >1300 | **1622** | 1105 | 470 |
| Particles >14µm | | ASTM D7647 | >80 | **92** | 92 | 39 |
| Particles >21µm | | ASTM D7647 | >20 | **19** | 28 | 10 |
| Particles >38µm | | ASTM D7647 | >4 | **1** | 1 | 1 |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >--/17/13 | **20/18/14** | 19/17/14 | 16/12 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 0.4 | **0.27** | 0.30 | 0.257 |

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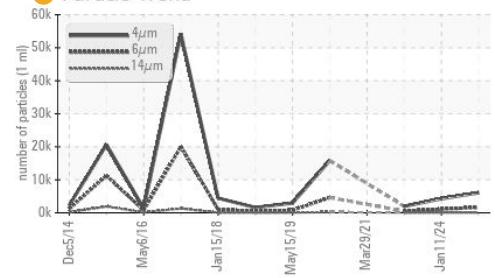
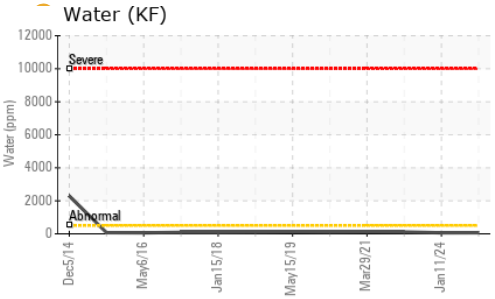
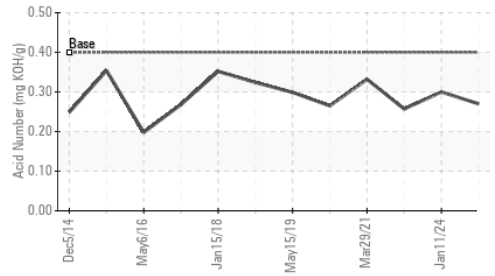
Particle Trend



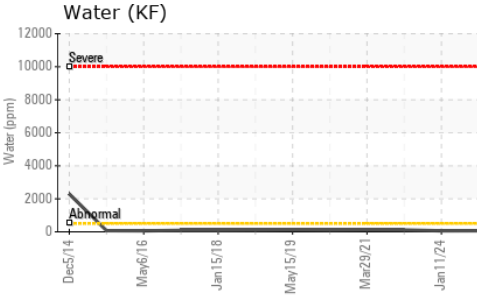

Water (KF)



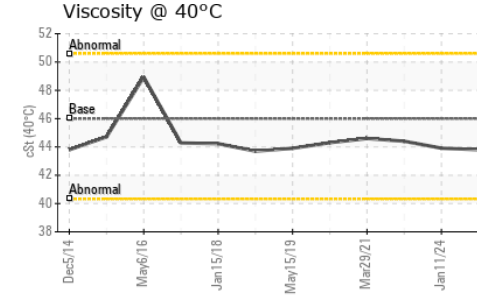

Acid Number




Water (KF)




Viscosity @ 40°C



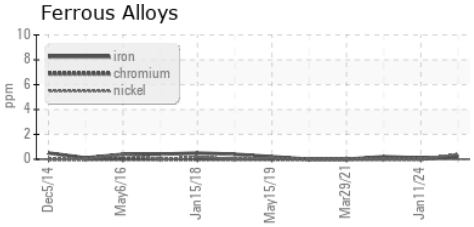

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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 | >0.05 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 46 | **43.8** | 43.91 | 44.4 |

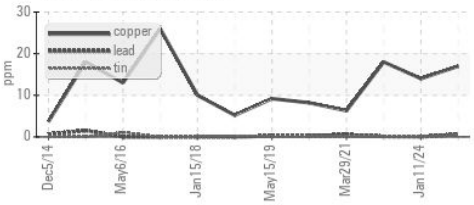
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

## GRAPHS

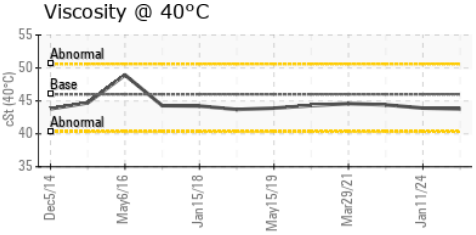
Ferrous Alloys



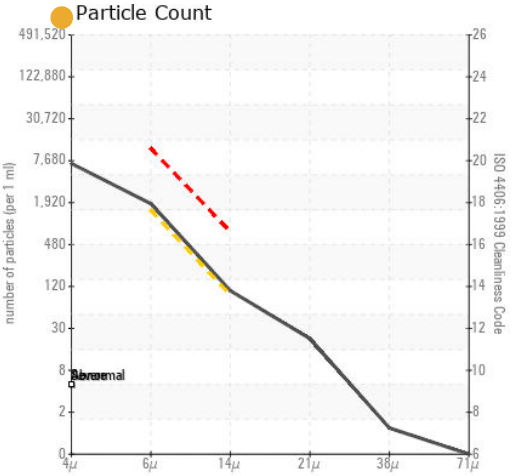

Non-ferrous Metals



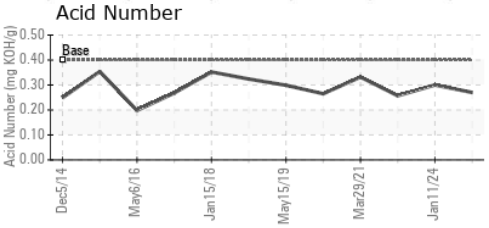

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : KCPA019421
**Lab Number** : 06218782
**Unique Number** : 11096979
**Test Package** : IND 2 ( Additional Tests: KF, PrtCount )

**Received** : 24 Jun 2024
**Tested** : 26 Jun 2024
**Diagnosed** : 26 Jun 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)*

**OLD DOMINION FREIGHTLINERS**
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WHITE PINO, TN
US 37890
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T:
F:

Report Id: OLDWHITN [WUSCAR] 06218782 (Generated: 06/26/2024 15:23:49) Rev: 1

Contact/Location: KEVIN SHULL - OLDWHITN