

### **OIL ANALYSIS REPORT**

Sample Rating Trend

ISO

Machine Id

# 7326090 (S/N 10611)

#### Component Compressor Fluid KAESER SIGMA (OEM) M-460 (--- GAL)

#### DIAGNOSIS

#### Recommendation

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. 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.

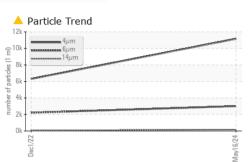
#### Fluid Condition

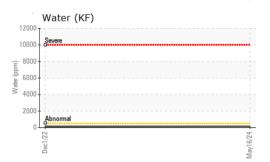
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

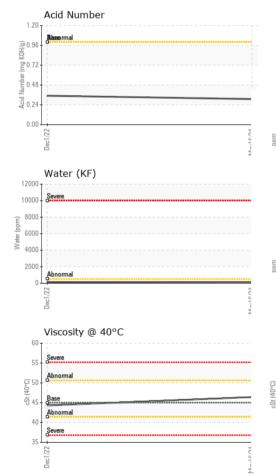
| SAMPLE INFORM  | IATION                        | method   | limit/base   | current  | history1  | history2                             |
|--|-------------------------------|--|--|--|---|--------------------------------------|
| Sample Number  |                               | Client Info  |  | KCPA014489   | KCP47680D   |                                      |
| Sample Date  |                               | Client Info  |  | 16 May 2024  | 01 Dec 2022   |                                      |
| Machine Age  | hrs                           | Client Info  |  | 5585   | 3152  |                                      |
| Oil Age  | hrs                           | Client Info  |  | 0  | 2500  |                                      |
| Oil Changed  |                               | Client Info  |  | Changed  | Changed   |                                      |
| Sample Status  |                               |  |  | ABNORMAL   | ATTENTION   |                                      |
| WEAR METALS  |                               | method   | limit/base   | current  | history1  | history2                             |
| Iron   | ppm                           | ASTM D5185m  | >50  | 0  | <1  |                                      |
| Chromium   | ppm                           | ASTM D5185m  | >10  | 0  | 0   |                                      |
| Nickel   | ppm                           | ASTM D5185m  | >3   | 0  | 0   |                                      |
| Titanium   | ppm                           | ASTM D5185m  | >3   | 0  | 0   |                                      |
| Silver   | ppm                           | ASTM D5185m  | >2   | 0  | 0   |                                      |
| Aluminum   | ppm                           | ASTM D5185m  | >10  | 0  | <1  |                                      |
| Lead   | ppm                           | ASTM D5185m  | >10  | <1   | 0   |                                      |
| Copper   | ppm                           | ASTM D5185m  | >50  | 5  | 4   |                                      |
| Tin  | ppm                           | ASTM D5185m  | >10  | 0  | <1  |                                      |
| Vanadium   | ppm                           | ASTM D5185m  |  | <1   | 0   |                                      |
| Cadmium  | ppm                           | ASTM D5185m  |  | 0  | 0   |                                      |
| ADDITIVES  |                               | method   | limit/base   | current  | history1  | history2                             |
| Boron  | ppm                           | ASTM D5185m  | 0  | 0  | 0   |                                      |
| Barium   | ppm                           | ASTM D5185m  | 90   | 8  | 0   |                                      |
| Molybdenum   | ppm                           | ASTM D5185m  | 0  | 0  | 0   |                                      |
| Manganese  | ppm                           | ASTM D5185m  |  | 0  | <1  |                                      |
| Magnesium  | ppm                           | ASTM D5185m  | 100  | 28   | 35  |                                      |
| Calcium  | ppm                           | ASTM D5185m  | 0  | 0  | 0   |                                      |
| Phosphorus   | ppm                           | ASTM D5185m  | 0  | 2  | 4   |                                      |
| Zinc   | ppm                           | ASTM D5185m  | 0  | 11   | 4   |                                      |
| Sulfur   | ppm                           | ASTM D5185m  | 23500  | 22351  | 20375   |                                      |
| CONTAMINANTS   |                               |  |  |  |   |                                      |
|  |                               | method   | limit/base   | current  | history1  | history2                             |
| Silicon  | ppm                           | method<br>ASTM D5185m  | limit/base   | current<br><1  | history1<br>0   | history2                             |
|  |                               |  |  |  |   |                                      |
| Silicon  | ppm                           | ASTM D5185m  |  | <1   | 0   |                                      |
| Silicon<br>Sodium  | ppm<br>ppm                    | ASTM D5185m<br>ASTM D5185m   | >25<br>>20   | <1<br>8  | 0<br>10   |                                      |
| Silicon<br>Sodium<br>Potassium<br>Water  | ppm<br>ppm<br>ppm             | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | >25<br>>20<br>>0.05  | <1<br>8<br>1   | 0<br>10<br><1   |                                      |
| Silicon<br>Sodium<br>Potassium<br>Water  | ppm<br>ppm<br>ppm<br>%<br>ppm | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D6304  | >25<br>>20<br>>0.05  | <1<br>8<br>1<br>0.011  | 0<br>10<br><1<br>0.014  |                                      |
| Silicon<br>Sodium<br>Potassium<br>Water<br>ppm Water   | ppm<br>ppm<br>ppm<br>%<br>ppm | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D6304<br>ASTM D6304<br><b>method</b><br>ASTM D7647   | >25<br>>20<br>>0.05<br>>500<br>limit/base                                    | <1<br>8<br>1<br>0.011<br>118   | 0<br>10<br><1<br>0.014<br>142.1   | <br><br>                             |
| Silicon<br>Sodium<br>Potassium<br>Water<br>ppm Water<br>FLUID CLEANLIN   | ppm<br>ppm<br>ppm<br>%<br>ppm | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D6304<br>ASTM D6304<br>method  | >25<br>>20<br>>0.05<br>>500<br>limit/base                                    | <1<br>8<br>1<br>0.011<br>118<br>current                                    | 0<br>10<br><1<br>0.014<br>142.1<br>history1   | <br><br><br>history2                 |
| Silicon<br>Sodium<br>Potassium<br>Water<br>ppm Water<br>FLUID CLEANLIN<br>Particles >4µm   | ppm<br>ppm<br>ppm<br>%<br>ppm | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D6304<br>ASTM D6304<br><b>method</b><br>ASTM D7647   | >25<br>>20<br>>0.05<br>>500<br>limit/base                                    | <1<br>8<br>1<br>0.011<br>118<br>current<br>11161                           | 0<br>10<br><1<br>0.014<br>142.1<br>history1<br>6306                                   | <br><br><br>history2                 |
| Silicon<br>Sodium<br>Potassium<br>Water<br>ppm Water<br>FLUID CLEANLIN<br>Particles >4µm<br>Particles >6µm   | ppm<br>ppm<br>ppm<br>%<br>ppm | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D6304<br>ASTM D6304<br>Method<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647                                | >25<br>>20<br>>0.05<br>>500<br>limit/base<br>>1300<br>>80                    | <1 8 1 0.011 118 current 11161 3008  | 0<br>10<br><1<br>0.014<br>142.1<br>history1<br>6306<br>2212                           | <br><br><br>history2<br>             |
| Silicon<br>Sodium<br>Potassium<br>Water<br>ppm Water<br>FLUID CLEANLIN<br>Particles >4µm<br>Particles >6µm<br>Particles >14µm  | ppm<br>ppm<br>ppm<br>%<br>ppm | ASTM D5185m<br>ASTM D5185m<br>ASTM D6304<br>ASTM D6304<br>Method<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647   | >25<br>>20<br>>0.05<br>>500<br>limit/base<br>>1300<br>>80                    | <1 8 1 0.011 118 current 11161 3008 172                                    | 0<br>10<br><1<br>0.014<br>142.1<br>history1<br>6306<br>2212<br>56                     | <br><br><br>history2<br><br>         |
| Silicon<br>Sodium<br>Potassium<br>Water<br>ppm Water<br>FLUID CLEANLIN<br>Particles >4µm<br>Particles >6µm<br>Particles >14µm<br>Particles >21µm                                       | ppm<br>ppm<br>ppm<br>%<br>ppm | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D6304<br>ASTM D6304<br>Method<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647                                | >25<br>>20<br>>0.05<br>>500<br>limit/base<br>>1300<br>>80<br>>20<br>>4       | <1 8 1 0.011 118 current 11161 3008 172 46                                 | 0<br>10<br><1<br>0.014<br>142.1<br>history1<br>6306<br>2212<br>56<br>7                | <br><br>history2<br><br>             |
| Silicon<br>Sodium<br>Potassium<br>Water<br>ppm Water<br>FLUID CLEANLIN<br>Particles >4µm<br>Particles >6µm<br>Particles >14µm<br>Particles >21µm<br>Particles >38µm                    | ppm<br>ppm<br>ppm<br>%<br>ppm | ASTM D5185m<br>ASTM D5185m<br>ASTM D6304<br>ASTM D6304<br>ASTM D6304<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647                             | >25<br>>20<br>>0.05<br>>500<br>limit/base<br>>1300<br>>80<br>>20<br>>4       | <1<br>8<br>1<br>0.011<br>118<br>current<br>11161<br>3008<br>172<br>46<br>3 | 0<br>10<br><1<br>0.014<br>142.1<br>history1<br>6306<br>2212<br>56<br>7<br>0           | <br><br>history2                     |
| Silicon<br>Sodium<br>Potassium<br>Water<br>ppm Water<br>FLUID CLEANLIN<br>Particles >4µm<br>Particles >6µm<br>Particles >14µm<br>Particles >21µm<br>Particles >38µm<br>Particles >71µm | ppm<br>ppm<br>%<br>ppm<br>ESS | ASTM D5185m<br>ASTM D5185m<br>ASTM D6304<br>ASTM D6304<br>ASTM D6304<br>ASTM D6304<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647 | >25<br>>20<br>>0.05<br>>500<br>limit/base<br>>1300<br>>80<br>>20<br>>4<br>>3 | <1 8 1 0.011 118 current 11161 3008 172 46 3 0                             | 0<br>10<br><1<br>0.014<br>142.1<br>history1<br>6306<br>2212<br>56<br>7<br>0<br>0<br>0 | <br><br>history2<br><br><br><br><br> |



#### Built for a lifetime."







## **OIL ANALYSIS REPORT**

|                          | 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       |                               |
| 6/24                     | Appearance                            | scalar            | *Visual          | NORML   | NORML               | NORML      |                               |
| May16/24                 | Odor                                  | scalar            | *Visual          | NORML   | NORML               | NORML      |                               |
|                          | Emulsified Water                      | scalar            | *Visual          | >0.05   | NEG                 | NEG        |                               |
|                          | Free Water                            | scalar            | *Visual          |   | NEG                 | NEG        |                               |
|                          | FLUID PROPER                          | TIFS              | method           | limit/base  | current             | history1   | history2                      |
|                          | Visc @ 40°C                           | cSt               | ASTM D445        | 45  | 46.4                | 44.3       |                               |
|                          | SAMPLE IMAGE                          |                   | method           | limit/base  | current             | history1   | history                       |
|                          | SAMPLE IMAGE                          | 5                 | method           | iinii/base  | current             | TIISLOFY I | history2                      |
| 24                       | Color                                 |                   |                  |   |                     |            | no image                      |
| May16/24                 | 0000                                  |                   |                  |   |                     |            | no image                      |
|                          |                                       |                   |                  |   |                     |            |                               |
|                          | Bottom                                |                   |                  |   |                     |            | no imore                      |
|                          | Dottom                                |                   |                  |   |                     |            | no image                      |
|                          | GRAPHS                                |                   |                  |   |                     |            |                               |
|                          | Ferrous Alloys                        |                   |                  |   | Particle Count      | -          |                               |
|                          | <sup>10</sup> 1                       |                   |                  | 491,520   | I                   | -          | T <sup>2</sup>                |
|                          | 8 - iron                              |                   |                  | 122.000   |                     |            |                               |
| V Cr u                   | E 6 - nickel                          |                   |                  | 122,880   | Ť                   |            | -2                            |
| U                        | d 4-                                  |                   |                  | 30,720  |                     |            | +2                            |
| -                        | 2 -                                   |                   |                  |   |                     |            |                               |
|                          |                                       |                   |                  | 7,680   | 1                   |            | -2                            |
|                          | Dec1/22                               |                   |                  | May 16/24<br>s (per 1 ml  |                     |            | -1                            |
|                          | ā                                     |                   |                  | Mar<br>les (p   |                     |            |                               |
|                          | Non-ferrous Meta                      | als               |                  | pitted 480  |                     | \          | 1                             |
|                          | 10 copper                             |                   |                  | May16/24<br>4500 May16/24<br>480<br>480<br>150                                  |                     | 1          | +1                            |
|                          | o tananana lead                       |                   |                  | quan  |                     |            |                               |
|                          |                                       |                   |                  | 30  | 1                   |            | -1                            |
| ~                        | 2                                     |                   |                  |   | Pharman             |            |                               |
| NCU O E                  |                                       |                   |                  |   | <b>Bereve</b> mal   |            |                               |
| NA                       | Dec1/22                               |                   |                  | 6/24  | +                   |            |                               |
|                          | Dec                                   |                   |                  | May16/24  |                     |            |                               |
|                          | Viscosity @ 40°C                      |                   |                  |   | ہوں۔<br>Acid Number | 14µ 21µ    | 38µ 71µ                       |
|                          | 60 T                                  |                   |                  | 1.20  |                     |            |                               |
|                          | 55 - Severe                           |                   |                  | (b) HO y 0.36<br>Buy 0.72<br>Buy 0.72<br>Buy 0.74<br>Buy 0.24<br>O.00<br>V 0.24 | Base mal            |            |                               |
|                          | S 50 - Abnormal                       |                   |                  | Ĕ0.72   | -                   |            |                               |
|                          | (C) 50 -<br>Base<br>85 45 - Base      |                   |                  | 문 0.48  | 1                   |            |                               |
|                          | 40                                    |                   |                  | 0.24  |                     |            |                               |
|                          | 35 Severe                             |                   |                  |   |                     |            |                               |
| 5                        | Dec1/22                               |                   |                  |   | Dec1/22             |            |                               |
| 10 D                     | Dec                                   |                   |                  | May16/24  | Dec                 |            |                               |
| 2                        |                                       |                   |                  |   |                     |            |                               |
| Laboratory<br>Sample No. | : WearCheck USA - 50<br>: KCPA014489  | 01 Madisc<br>Rece |                  | r, NC 27513<br>I May 2024   |                     |            | <b>IMAN SPEY</b><br>95 MARKET |
|                          | : 06196693                            | Teste             |                  | 3 Jun 2024  |                     |            | RANCISCO,                     |
| Number                   |                                       |                   |                  |   | Poldridao           | 0,         | US 941                        |
|                          | : 11058816                            | Diadr             | <b>10sea</b> :03 | Jun 2024 - Don  | Dalulluye           |            | 00 341                        |
| Unique Number            | : 11058816<br>: IND 2 ( Additional Te |                   |                  | Jun 2024 - Don  | Dalulluye           | Conta      | act: JB MILL                  |

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Contact/Location: JB MILLER - TISSAN

Page 2 of 2

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