

## **OIL ANALYSIS REPORT**

Sample Rating Trend

# ISO

### Machine Id **KAESER A/C SM 10 2979216 (S/N 1147)**

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 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 INFORM    | <b>MATION</b> | method       | limit/base | current             | history1 | history2 |
|------------------|---------------|--------------|------------|---------------------|----------|----------|
| Sample Number    |               | Client Info  |            | KCPA020833          |          |          |
| Sample Date      |               | Client Info  |            | 28 Jun 2024         |          |          |
| Machine Age      | hrs           | Client Info  |            | 36039               |          |          |
| Oil Age          | hrs           | Client Info  |            | 0                   |          |          |
| Oil Changed      |               | Client Info  |            | Changed             |          |          |
| Sample Status    |               |              |            | ATTENTION           |          |          |
| WEAR METALS      |               | method       | limit/base | current             | history1 | history2 |
| Iron             | ppm           | ASTM D5185m  | >50        | <1                  |          |          |
| Chromium         | ppm           | ASTM D5185m  | >10        | 0                   |          |          |
| Nickel           | ppm           | ASTM D5185m  | >3         | 0                   |          |          |
| Titanium         | ppm           | ASTM D5185m  | >3         | 0                   |          |          |
| Silver           | ppm           | ASTM D5185m  | >2         | 0                   |          |          |
| Aluminum         | ppm           | ASTM D5185m  | >10        | 0                   |          |          |
| Lead             | ppm           | ASTM D5185m  | >10        | 0                   |          |          |
| Copper           | ppm           | ASTM D5185m  |            | 3                   |          |          |
| Tin              | ppm           | ASTM D5185m  | >10        | 0                   |          |          |
| Vanadium         | ppm           | ASTM D5185m  |            | 0                   |          |          |
| Cadmium          | ppm           | ASTM D5185m  |            | 0                   |          |          |
| ADDITIVES        |               | method       | limit/base | current             | history1 | history2 |
| Boron            | ppm           | ASTM D5185m  | 0          | 0                   |          |          |
| Barium           | ppm           | ASTM D5185m  | 90         | 0                   |          |          |
| Molybdenum       | ppm           | ASTM D5185m  | 0          | 0                   |          |          |
| Manganese        |               | ASTM D5185m  | 0          | 0                   |          |          |
| Magnesium        | ppm           | ASTM D5185m  | 100        | 2                   |          |          |
| -                | ppm           |              |            | 0                   |          |          |
| Calcium          | ppm           | ASTM D5185m  |            |                     |          |          |
| Phosphorus       | ppm           | ASTM D5185m  | 0          | 71                  |          |          |
| Zinc             | ppm           | ASTM D5185m  |            | 10                  |          |          |
| Sulfur           | ppm           | ASTM D5185m  | 23500      | 17404               |          |          |
| CONTAMINANTS     | ;             | method       | limit/base | current             | history1 | history2 |
| Silicon          | ppm           | ASTM D5185m  | >25        | 1                   |          |          |
| Sodium           | ppm           | ASTM D5185m  |            | 8                   |          |          |
| Potassium        | ppm           | ASTM D5185m  | >20        | 1                   |          |          |
| Water            | %             | ASTM D6304   |            | 0.006               |          |          |
| ppm Water        | ppm           | ASTM D6304   | >500       | 65                  |          |          |
| FLUID CLEANLIN   | IESS          | method       | limit/base | current             | history1 | history2 |
| Particles >4µm   |               | ASTM D7647   |            | 6216                |          |          |
| Particles >6µm   |               | ASTM D7647   | >1300      | <mark> </mark> 1843 |          |          |
| Particles >14µm  |               | ASTM D7647   | >80        | 71                  |          |          |
| Particles >21µm  |               | ASTM D7647   | >20        | 9                   |          |          |
| Particles >38µm  |               | ASTM D7647   | >4         | 0                   |          |          |
| Particles >71µm  |               | ASTM D7647   | >3         | 0                   |          |          |
| Oil Cleanliness  |               | ISO 4406 (c) | >/17/13    | <b>20/18/13</b>     |          |          |
| FLUID DEGRADA    | TION          | method       | limit/base | current             | history1 | history2 |
| Acid Number (AN) | mg KOH/g      | ASTM D8045   | 1.0        | 0.30                |          |          |
|                  |               |              |            |                     |          |          |

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## **OIL ANALYSIS REPORT**

| Particle Trend   | VISUAL  |  | method   | limit/base                                 | current                         | history1 | history2   |
|--|---|--|--|--|---------------------------------|----------|--|
| 6k - 4µm   | White Metal   | scalar                                 | *Visual  | NONE                                       | NONE                            |          |  |
| 5k - 14µm  | Yellow Metal  | scalar                                 | *Visual  | NONE                                       | NONE                            |          |  |
|  | Precipitate   | scalar                                 | *Visual  | NONE                                       | NONE                            |          |  |
| 3k -   | Silt  | scalar                                 | *Visual  | NONE                                       | NONE                            |          |  |
| 2k   | Debris  | scalar                                 | *Visual  | NONE                                       | NONE                            |          |  |
| )k   | Sand/Dirt   | scalar                                 | *Visual  | NONE                                       | NONE                            |          |  |
|  |   | scalar                                 | *Visual  | NORML                                      | NORML                           |          |  |
| Jun 28/24  | Appearance<br>Odor  | scalar                                 | *Visual  | NORML                                      | NORML                           |          |  |
|  | Emulsified Water  | scalar                                 | *Visual  | >0.05                                      | NEG                             |          |  |
| Water (KF)   | Free Water  | scalar                                 | *Visual  |  | NEG                             |          |  |
| 00 - <mark>Severe</mark>   | FLUID PROPE   |  | method   | limit/base                                 | current                         | history1 | history2   |
| - 00   | Visc @ 40°C   | cSt                                    | ASTM D445  | 45   | 46.8                            |          |  |
| 10   | SAMPLE IMAG   |  |  |  |                                 | history1 | history?   |
| 0  | SAMPLE IMAG   | 125                                    | method   | limit/base                                 | current                         | history1 | history2   |
| 0 Annoma   | tolor   |  |  |  |                                 | no image | no image   |
| Acid Number  | Bottom  |  |  |  |                                 | no image | no image   |
| 36 - <b>0</b><br>772 -   | GRAPHS  |  |  |  |                                 |          |  |
| 18   | Ferrous Alloys  |  |  |  | Particle Count                  |          |  |
| 24   | 10 <sub>T</sub>   |  |  | 491,52                                     |                                 |          | T <sup>26</sup>  |
|  | 8 - iron  |  |  | 100.00                                     |                                 |          |  |
|  |   |  |  | 122,88                                     | U-                              |          | -24  |
| Jun28/24   | <u> </u>  |  |  | 30,72                                      | D -                             |          | -22  |
| Water (VE)   | 2   |  |  | 7,68                                       |                                 |          | -20  |
| Water (KF)   | 24<br>0   |  |  |  |                                 |          | +20<br>+18<br>+16<br>+14   |
| Severe   | Jun 28/24   |  |  | Jun28/24<br>s (per 1 ml                    |                                 |          | -18  |
| 0  | Non-ferrous Me  | tale                                   |  | r<br>sapjų 48                              |                                 | <b>`</b> | 10   |
| 0  | 10 <sub>T</sub> :   |  |  | of par                                     |                                 |          | 10   |
| 10   | 8 - copper  |  |  | Jun 28/24<br>16 particles (per 1 ml)<br>8  | 0                               |          | -14  |
| 10   |   |  |  | 2 3  |                                 |          | +12  |
| Abnormal   | <sup>ti</sup> 4   |  |  |  |                                 |          |  |
| \$254 T u  | 2   |  |  |  | <sup>8</sup> <b>Bisrese</b> mal |          | -10  |
| Jun 28/24  | 25 0  |  |  | 24   | 2-                              |          | -8   |
|  | un28/2  |  |  | Jun28/24                                   |                                 |          |  |
| Viscosity @ 40°C   | ,   | ic.                                    |  | Γ,   | 0.<br>4μ 6μ                     | 14µ 21µ  | 38µ 71µ  |
| Severe   | Viscosity @ 40°   | · · · · · · · · · · · · · · · · · · ·  |  | 1.2  | Acid Number                     |          |  |
|  | 55 - Severe   |  |  | (B)HO 0.9                                  | Basermal                        |          |  |
| 0 + Abnormal   | S 50 - Abnormal   |  |  | g 0.3<br>E 0.7                             | 2                               |          |  |
| 50 - Base  | 345 Base  |  |  |  | 8                               |          |  |
| Abnormal   | 40 Abnormal   |  |  | 4.0.4<br>W PO24<br>V O.2<br>V O.0          | 4                               |          |  |
| evere  | 35 Severe   |  |  |  |                                 |          |  |
| 25   | 10,28/24  |  |  | Jun28/24                                   | Jun 28/24                       |          |  |
| Jun 28/24  | ,un L   |  |  | Jun  | Jun.                            |          |  |
| Samuela Samuela<br>Samuela Samuela S | ratory : WearCheck USA -<br>ole No. : KCPA020833<br>Number : 06235977<br>e Number : 11124811<br>Package : IND 2 (Additional 7 | Rece<br>Teste<br>Diagr<br>Fests: KF, F | ived : 15<br>ed : 16<br>nosed : 17<br>PrtCount ) | 5 Jul 2024<br>5 Jul 2024<br>Jul 2024 - Don |                                 | A        | SOURCES IN<br>2136 E FM 91<br>LVARADO, T<br>US 7600<br>ervice Manage |
|  | le report, contact Customer Se<br>ods that are outside of the ISC   |  |  |  |                                 |          | т  |

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