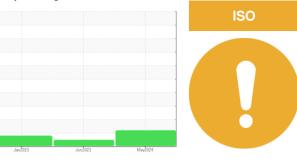


### **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id

# 7280149 (S/N 1220)

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

#### 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 INFORM    | IATION   | method       | limit/base | current             | history1    | history2    |
|------------------|----------|--------------|------------|---------------------|-------------|-------------|
| Sample Number    |          | Client Info  |            | KCPA012425          | KCPA005052  | KCP54654    |
| Sample Date      |          | Client Info  |            | 10 May 2024         | 28 Jun 2023 | 23 Jan 2023 |
| Machine Age      | hrs      | Client Info  |            | 24948               | 18069       | 15379       |
| Oil Age          | hrs      | Client Info  |            | 2835                | 0           | 0           |
| Oil Changed      |          | Client Info  |            | Changed             | N/A         | Changed     |
| Sample Status    |          |              |            | ATTENTION           | NORMAL      | ATTENTION   |
| WEAR METALS      |          | method       | limit/base | current             | history1    | history2    |
| Iron             | ppm      | ASTM D5185m  | >50        | 0                   | <1          | 0           |
| Chromium         | ppm      | ASTM D5185m  | >10        | 0                   | 0           | 0           |
| Nickel           | ppm      | ASTM D5185m  | >3         | 0                   | <1          | 0           |
| Titanium         | ppm      | ASTM D5185m  | >3         | 0                   | 0           | 0           |
| Silver           | ppm      | ASTM D5185m  | >2         | <1                  | 0           | 0           |
| Aluminum         | ppm      | ASTM D5185m  | >10        | <1                  | 0           | 0           |
| Lead             | ppm      | ASTM D5185m  | >10        | <1                  | 0           | 0           |
| Copper           | ppm      | ASTM D5185m  |            | 7                   | 4           | 12          |
| Tin              | ppm      | ASTM D5185m  | >10        | <1                  | 0           | 0           |
| Vanadium         | ppm      | ASTM D5185m  | -          | <1                  | 0           | 0           |
| Cadmium          | ppm      | ASTM D5185m  |            | 0                   | 0           | 0           |
| ADDITIVES        |          | method       | limit/base | current             | history1    | history2    |
| Boron            | ppm      | ASTM D5185m  | 0          | 0                   | 0           | 0           |
| Barium           | ppm      | ASTM D5185m  | 90         | 6                   | 3           | 0           |
| Molybdenum       | ppm      | ASTM D5185m  | 0          | 0                   | 0           | 0           |
| Manganese        | ppm      | ASTM D5185m  |            | 0                   | 0           | 0           |
| Magnesium        | ppm      | ASTM D5185m  | 100        | 31                  | 34          | 7           |
| Calcium          | ppm      | ASTM D5185m  | 0          | 0                   | 0           | 0           |
| Phosphorus       | ppm      | ASTM D5185m  | 0          | 0                   | 0           | 3           |
| Zinc             | ppm      |              |            | 0                   | 10          | 18          |
| Sulfur           | ppm      | ASTM D5185m  | 23500      | 22285               | 18401       | 18265       |
| CONTAMINANTS     |          | method       | limit/base | current             | history1    | history2    |
| Silicon          | ppm      | ASTM D5185m  | >25        | 2                   | 1           | 2           |
| Sodium           | ppm      | ASTM D5185m  |            | 20                  | 14          | <1          |
| Potassium        | ppm      | ASTM D5185m  | >20        | 4                   | 2           | 1           |
| Water            | %        | ASTM D6304   | >0.05      | 0.012               | 0.012       | 0.004       |
| ppm Water        | ppm      | ASTM D6304   | >500       | 122                 | 126.7       | 40.4        |
| FLUID CLEANLIN   | IESS     | method       | limit/base | current             | history1    | history2    |
| Particles >4µm   |          | ASTM D7647   |            | 6458                | 2742        | 3956        |
| Particles >6µm   |          | ASTM D7647   | >1300      | <mark> </mark> 1888 | 839         | 1303        |
| Particles >14µm  |          | ASTM D7647   | >80        | <b>e</b> 100        | 65          | 42          |
| Particles >21µm  |          | ASTM D7647   | >20        | 19                  | 17          | 5           |
| Particles >38µm  |          | ASTM D7647   | >4         | 6                   | 1           | 0           |
| Particles >71µm  |          | ASTM D7647   | >3         | 5                   | 0           | 0           |
| Oil Cleanliness  |          | ISO 4406 (c) | >/17/13    | <b>20/18/14</b>     | 19/17/13    | 9/18/13     |
| FLUID DEGRADA    | TION     | method       | limit/base | current             | history1    | history2    |
| Acid Number (AN) | mg KOH/g | ASTM D8045   | 1.0        | 0.30                | 0.30        | 0.26        |
| . ,              | -        |              |            |                     |             |             |

Contact/Location: J. PLANTZ - PACMOD Page 1 of 2

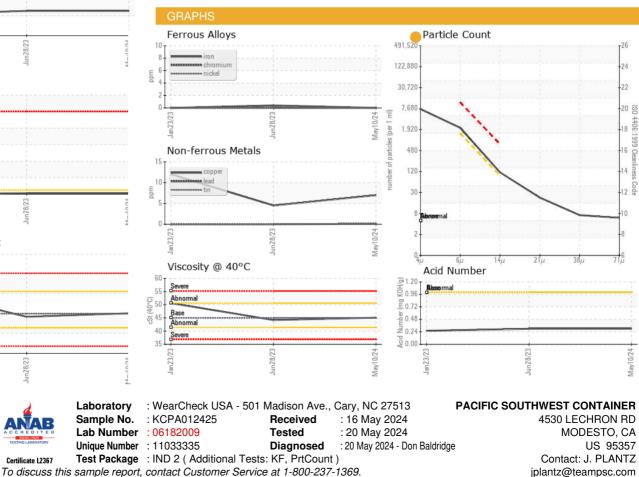


Built for a lifetime.

## **OIL ANALYSIS REPORT**

| Bu   | ilt for a lifetime.        |   |  |
|--|----------------------------|---|--|
|  | Particle Trend             |   | VISUA  |
| 6k.<br>5k.<br>3k.<br>3k.<br>3k.<br>2k.<br>1k.<br>0k.     | 4μm<br>6μm<br>14μm         |   | White M<br>Yellow N<br>Precipita<br>Silt<br>Debris<br>Sand/Di  |
| 12000-   | Water (KF)                 | 2009<br>1979  | Appeara<br>Odor<br>Emulsifi<br>Free Wa   |
| 10000.   | Severe                     |   | FLUID  |
| • 0008 (bbm)   |                            |   | Visc @ 4   |
| ¥4000•<br>2000•  |                            |   | SAMP   |
| 2000-  | Abnormal                   |   |  |
| 0.   | Jan 23/23 -<br>Jun 28/23 - | A Contraction of the second | Color  |
| 1.20-<br>( <sup>1</sup> <sup>6</sup> /HOX <sup>1</sup>   | Acid Number                |   | Bottom   |
| - 0.96<br>- 0.72<br>- 0.48<br>- 0.48<br>- 0.48<br>- 0.48 |                            |   | GRAP   |
| 0.00-  |                            |   | Ferrou   |
|  | Jan 23/23<br>Jun 28/23     | КСО с. – туч  |  |
| 12000-   | Water (KF)                 |   | 2  |
| 10000.   | Severe                     |   |  |
| 0000   |                            |   | Jan 23/23  |
| (ppm) 4000 - 0000  |                            |   |  |
| ≅<br>≤ 4000.   |                            |   | Non-fe   |
| 2000-  |                            |   | 10-  |
| 0.   | Abnormal                   |   | ud   |
|  | Jan 23/23<br>Jun 28/23     | 2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2                     | 0  |
| 60-  | Viscosity @ 40°C           |   | Jan 23/23  |
| 55-  | Severe                     |   | Viscos   |
| ç 50-  | Abnormal                   |   | 55 - Severe  |
| (J=0+)<br>1\$3 45  | Base                       |   | (Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant)<br>(Constant) |
| 40-  | Abnormal                   |   | 40   |
|  | Severe                     |   | 35   |
| 35-  | 23 - 23 -                  | <i>v</i> c  | 23/23  |

| 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    | LIGHT    | 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 PROPERT    | IES    | method    | limit/base | current | history1 | history2 |
| Visc @ 40°C      | cSt    | ASTM D445 | 45         | 45.1    | 44.2     | 50.6     |
| SAMPLE IMAGES    | 3      | method    | limit/base | current | history1 | history2 |
| Color            |        |           |            |         |          |          |
| Bottom           |        |           |            |         |          |          |



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\* - 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)

Certificate 12367

Jan 23/23

Contact/Location: J. PLANTZ - PACMOD

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