

# **PROBLEM SUMMARY**

V

Sample Rating Trend

WATER

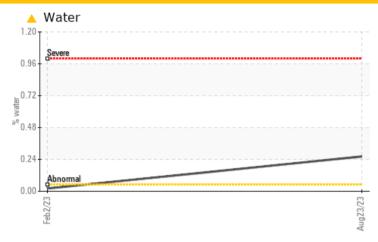
8542033 (S/N 1340)

Component

Compressor

KAESER SIGMA (OEM) S-460 (--- GAL)

# **COMPONENT CONDITION SUMMARY**



# RECOMMENDATION

Oil and filter change at the time of sampling has been noted. We recommend an early resample in 500 hours to monitor this condition. We were unable to perform a particle count due to a high concentration of particles present in this sample.

PROBLEMATIC TEST RESULTS											
Sample Status				<b>ABNORMAL</b>	ATTENTION						
Water	%	ASTM D6304	>0.05	<b>△</b> 0.262	0.021						
ppm Water	ppm	ASTM D6304	>500	<b>2620</b>	217.2						
Debris	scalar	*Visual	NONE	▲ MODER	NONE						

Customer Id: MAROCAKC Sample No.: KC83011 Lab Number: 05937845 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Doug Bogart +1 (800)237-1369 x4016 dougb@wearcheckusa.com

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

### **RECOMMENDED ACTIONS** Action Date Done By Description **Status** Change Fluid ? Oil and filter change at the time of sampling has been noted. Change Filter ? Oil and filter change at the time of sampling has been noted. We were unable to perform a particle count due to a high concentration of ? Alert particles present in this sample.

# HISTORICAL DIAGNOSIS

02 Feb 2023 Diag: Angela Borella

ISO



Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. There is a moderate amount of particulates present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.





# **OIL ANALYSIS REPORT**

8542033 (S/N 1340)

Compressor

KAESER SIGMA (OEM) S-460 (--- GAL)

# Sample Rating Trend



# **DIAGNOSIS**

# Recommendation

Oil and filter change at the time of sampling has been noted. We recommend an early resample in 500 hours to monitor this condition. We were unable to perform a particle count due to a high concentration of particles present in this sample.

### Wear

All component wear rates are normal.

### Contamination

Moderate concentration of visible dirt/debris present in the oil. There is a light concentration of water present in the oil.

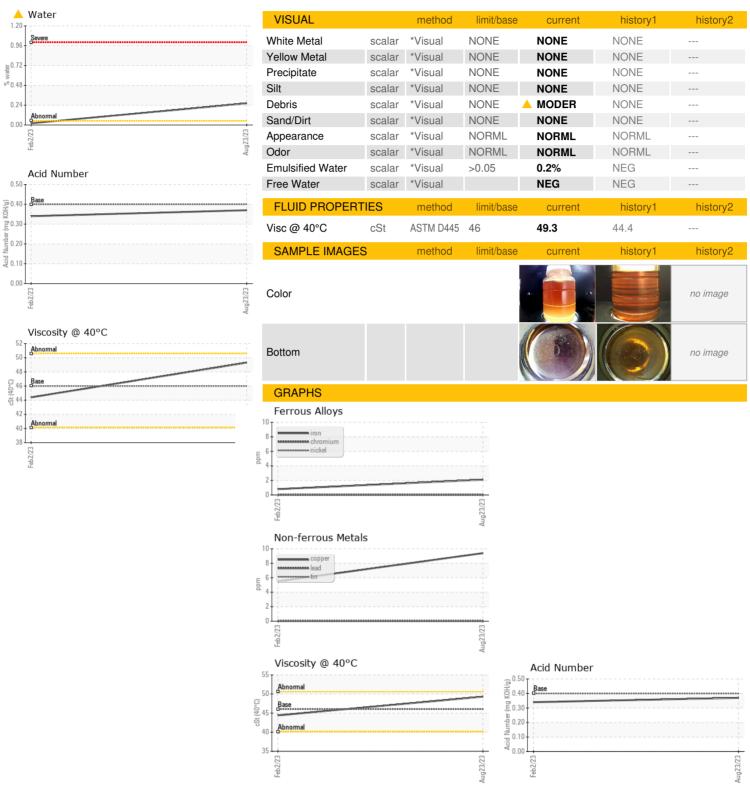
# **Fluid Condition**

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

Sample Date   Client Info   23 Aug 2023   02 Feb 2023				Feb 2023	Aug2023		
Sample Date   Client Info   23 Aug 2023   02 Feb 2023	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         2933         1325            Oil Age         hrs         Client Info         1608         1325            Oil Changed         Client Info         Changed         Changed            Sample Status         MBANORMAL         ATTENTION            WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         2         <1	Sample Number		Client Info		KC83011	KC106451	
Oil Age         hrs         Client Info         1608         1325            Oil Changed         Client Info         Changed         Changed            Sample Status         Method         limit/base         Current         history1            WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         2         <1            Chromium         ppm         ASTM D5185m         >30         0         0            Nickel         ppm         ASTM D5185m         >3         0         0            Siliver         ppm         ASTM D5185m         >2         0         0            Lead         ppm         ASTM D5185m         >10         0         0            Copper         ppm         ASTM D5185m         >10         0         0            Tin         ppm         ASTM D5185m         >10         0         0            Cadmium         ppm         ASTM D5185m         0         0            Cadm	Sample Date		Client Info		23 Aug 2023	02 Feb 2023	
Client Info   Changed ABNORMAL   ATTENTION   Changed ABNOR	Machine Age	hrs	Client Info		2933	1325	
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         2         <1	Oil Age	hrs	Client Info		1608	1325	
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         2         <1	Oil Changed		Client Info		Changed	Changed	
Iron	Sample Status				_	ATTENTION	
Chromium         ppm         ASTM D5185m         >10         0         0	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>50	2	<1	
Titanium ppm ASTM D5185m >3 0 0 0  Silver ppm ASTM D5185m >2 0 0 0  Aluminum ppm ASTM D5185m >10 5 0  Lead ppm ASTM D5185m >10 0 0  Copper ppm ASTM D5185m >10 0 0  Tin ppm ASTM D5185m >10 0 0  Vanadium ppm ASTM D5185m 0 0 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  Barium ppm ASTM D5185m 0 0 0  Malphale ppm ASTM D5185m 0 0 0  Malphale ppm ASTM D5185m 0 0 0  Manganese ppm ASTM D5185m 0 0 0  Manganesium ppm ASTM D5185m 1 1 0  Calcium ppm ASTM D5185m 2  Phosphorus ppm ASTM D5185m 1 10  Zinc ppm ASTM D5185m 1 10  CONTAMINANTS method limit/base current history1 history2  Sillicon ppm ASTM D5185m 2.2  FLUID CLEANLINESS method limit/base current history1 history2  FLUID CLEANLINESS method limit/base current history1 history2  Particles >4μm ASTM D7647 >80 Δ.262  Particles >6μm ASTM D7647 >80 Δ.262  Particles >71μm ASTM D7647 >80 Δ.1517  Particles >71μm ASTM D7647 >90 Δ.1517  Particles >71μm ASTM D7647 >90 Δ.1517  Particles >71μm ASTM D7647 >90 Δ.1517 Δ.1918/12  FLUID DEGRADATION method limit/base current history1 history2	Chromium	ppm	ASTM D5185m	>10	0	0	
Silver	Nickel	ppm	ASTM D5185m	>3	0	0	
Aluminum         ppm         ASTM D5185m         >10         5         0            Lead         ppm         ASTM D5185m         >10         0         0            Copper         ppm         ASTM D5185m         >0         0         0            Tin         ppm         ASTM D5185m         >10         0         0            Vanadium         ppm         ASTM D5185m         0         0         0            Cadmium         ppm         ASTM D5185m         0         0            Boron         ppm         ASTM D5185m         0         0            Boron         ppm         ASTM D5185m         90         6         0            Molybdenum         ppm         ASTM D5185m         0         0             Magnesium         ppm         ASTM D5185m         90         29         43            Calcium         ppm         ASTM D5185m         2         <1	Titanium	ppm	ASTM D5185m	>3	0	0	
Aluminum         ppm         ASTM D5185m         >10         5         0            Lead         ppm         ASTM D5185m         >10         0         0            Copper         ppm         ASTM D5185m         >50         9         6            Tin         ppm         ASTM D5185m         >10         0         0            Vanadium         ppm         ASTM D5185m         0         0         0            Cadmium         ppm         ASTM D5185m         0         0             Boron         ppm         ASTM D5185m         90         6         0            Barium         ppm         ASTM D5185m         90         6         0            Manganese         ppm         ASTM D5185m         90         29         43            Magnesium         ppm         ASTM D5185m         2         -1         0            Magnesium         ppm         ASTM D5185m         2         -1         0            Magnesium         ppm         ASTM D5185m         2         -1 <td< td=""><td>Silver</td><td>ppm</td><td>ASTM D5185m</td><td>&gt;2</td><td>0</td><td>0</td><td></td></td<>	Silver	ppm	ASTM D5185m	>2	0	0	
Lead         ppm         ASTM D5185m         >10         0         0	Aluminum		ASTM D5185m	>10	5	0	
Copper         ppm         ASTM D5185m         >50         9         6	Lead		ASTM D5185m	>10	0	0	
Tin ppm ASTM D5185m >10 0 0  ADDITIVES method limit/base current history1 history2  Boron ppm ASTM D5185m 0 0  Barium ppm ASTM D5185m 0 0 0  Molybdenum ppm ASTM D5185m 0 0 0  Magnesium ppm ASTM D5185m 1 1  Calcium ppm ASTM D5185m 2  Phosphorus ppm ASTM D5185m 1 1  Zinc ppm ASTM D5185m 1 1  CONTAMINANTS method limit/base current history1 history2  Silicon ppm ASTM D5185m 2.2  Sodium ppm ASTM D5185m 6 10  Potassium ppm ASTM D5185m 5.25  Sodium ppm ASTM D5185m 6 10  FLUID CLEANLINESS method limit/base current history1 history2  FLUID CLEANLINESS method limit/base current history1 history2  Particles >4μm ASTM D7647 >	Copper		ASTM D5185m	>50	9	6	
Vanadium         ppm         ASTM D5185m         0         0            Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0            Barium         ppm         ASTM D5185m         90         6         0            Molybdenum         ppm         ASTM D5185m         0         0             Manganese         ppm         ASTM D5185m         0         0             Magnesium         ppm         ASTM D5185m         0         29         43            Calcium         ppm         ASTM D5185m         2         <1         0            Phosphorus         ppm         ASTM D5185m         1         10          10            Zinc         ppm         ASTM D5185m         2         <1         1            CONTAMINANTS         method         limit/base         current         history1         history2	Tin				0		
Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0            Barium         ppm         ASTM D5185m         90         6         0            Molybdenum         ppm         ASTM D5185m         0         0            Magnesium         ppm         ASTM D5185m         0         29         43            Magnesium         ppm         ASTM D5185m         90         29         43            Calcium         ppm         ASTM D5185m         2         <1         0            Phosphorus         ppm         ASTM D5185m         1         10          10            Zinc         ppm         ASTM D5185m         2         <1         1             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         20         9         17	Vanadium		ASTM D5185m			0	
Boron ppm ASTM D5185m 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Cadmium				-		
Boron         ppm         ASTM D5185m         0         0            Barium         ppm         ASTM D5185m         90         6         0            Molybdenum         ppm         ASTM D5185m         0         0            Manganese         ppm         ASTM D5185m         90         29         43            Magnesium         ppm         ASTM D5185m         90         29         43            Calcium         ppm         ASTM D5185m         90         29         43            Calcium         ppm         ASTM D5185m         2         <1	ADDITIVES		method	limit/base	current	history1	history2
Barium         ppm         ASTM D5185m         90         6         0            Molybdenum         ppm         ASTM D5185m         0         0            Manganese         ppm         ASTM D5185m         <1	Boron	maa	ASTM D5185m		0		
Molybdenum         ppm         ASTM D5185m         0         0            Manganese         ppm         ASTM D5185m         <1	Barium		ASTM D5185m	90		0	
Manganese         ppm         ASTM D5185m         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1 </td <td>Molvbdenum</td> <td></td> <td></td> <td></td> <td>0</td> <td>0</td> <td></td>	Molvbdenum				0	0	
Magnesium         ppm         ASTM D5185m         90         29         43            Calcium         ppm         ASTM D5185m         2         <1			ASTM D5185m		<1	<1	
Calcium         ppm         ASTM D5185m         2         <1         0            Phosphorus         ppm         ASTM D5185m         1         10            Zinc         ppm         ASTM D5185m         49         17            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         <1	-			90	29	43	
Phosphorus         ppm         ASTM D5185m         1         10            Zinc         ppm         ASTM D5185m         49         17            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         <1         1            Sodium         ppm         ASTM D5185m         ≥25         <1         1            Potassium         ppm         ASTM D5185m         ≥20         9         17            Water         %         ASTM D5185m         >20         9         17            Water         %         ASTM D5185m         >20         9         17            Water         %         ASTM D6304         >0.05         ♠ 0.262         0.021            Ppm Water         ppm         ASTM D6304         >500         ♠ 2620         217.2            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >80          ♠ 1517	Calcium		ASTM D5185m	2	<1	0	
Zinc         ppm         ASTM D5185m         49         17            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         <1					1		
Silicon         ppm         ASTM D5185m         >25         <1         1            Sodium         ppm         ASTM D5185m         6         10            Potassium         ppm         ASTM D5185m         >20         9         17            Water         %         ASTM D6304         >0.05         ▲ 0.262         0.021            ppm Water         ppm         ASTM D6304         >500         ▲ 2620         217.2            FLUID CLEANLINESS         method         limit/base         current         history1         history2           FLUID CLEANLINESS         method         limit/base         current         history1         history2           FLUID CLEANLINESS         method         limit/base         current         history1         history2    Particles >4µm  ASTM D7647  ASTM D76	Zinc				49		
Sodium         ppm         ASTM D5185m         6         10            Potassium         ppm         ASTM D5185m         >20         9         17            Water         %         ASTM D6304         >0.05         ▲ 0.262         0.021            ppm Water         ppm         ASTM D6304         >500         ▲ 2620         217.2            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647          4756            Particles >6μm         ASTM D7647         >1300          Δ 1517            Particles >14μm         ASTM D7647         >80          28            Particles >21μm         ASTM D7647         >20          4            Particles >71μm         ASTM D7647         >3          0            Particles >71μm         ASTM D7647         >3          0            Oil Cleanliness         ISO 4406 (c)         >/17/13          19/18/12	CONTAMINANTS	3	method	limit/base	current	history1	history2
Sodium         ppm         ASTM D5185m         6         10            Potassium         ppm         ASTM D5185m         >20         9         17            Water         %         ASTM D6304         >0.05         ▲ 0.262         0.021            ppm Water         ppm         ASTM D6304         >500         ▲ 2620         217.2            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647          4756            Particles >6μm         ASTM D7647         >1300          Δ 1517            Particles >14μm         ASTM D7647         >80          28            Particles >21μm         ASTM D7647         >20          4            Particles >71μm         ASTM D7647         >3          0            Particles >71μm         ASTM D7647         >3          0            Oil Cleanliness         ISO 4406 (c)         >/17/13          19/18/12	Silicon	maa	ASTM D5185m	>25	<1	1	
Potassium         ppm         ASTM D5185m         >20         9         17            Water         %         ASTM D6304         >0.05         ▲ 0.262         0.021            ppm Water         ppm         ASTM D6304         >500         ▲ 2620         217.2            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647          4756            Particles >6μm         ASTM D7647         >1300          Δ 1517            Particles >14μm         ASTM D7647         >80          28            Particles >21μm         ASTM D7647         >20          4            Particles >38μm         ASTM D7647         >3          0            Particles >71μm         ASTM D7647         >3          0            Oil Cleanliness         ISO 4406 (c)         >/17/13          19/18/12            FLUID DEGRADATION         method         limit/base         current         history1         history2<	Sodium		ASTM D5185m		6	10	
Water         %         ASTM D6304         >0.05         ▲ 0.262         0.021            ppm Water         ppm         ASTM D6304         >500         ▲ 2620         217.2            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647          4756            Particles >6μm         ASTM D7647         >1300          Δ 1517            Particles >14μm         ASTM D7647         >80          28            Particles >21μm         ASTM D7647         >20          4            Particles >38μm         ASTM D7647         >4          0            Particles >71μm         ASTM D7647         >3          0            Oil Cleanliness         ISO 4406 (c)         >/17/13          19/18/12            FLUID DEGRADATION         method         limit/base         current         history1         history2				>20	-		
ppm Water         ppm         ASTM D6304         >500         ▲ 2620         217.2            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647          4756            Particles >6μm         ASTM D7647         >1300          ▲ 1517            Particles >14μm         ASTM D7647         >80          28            Particles >21μm         ASTM D7647         >20          4            Particles >38μm         ASTM D7647         >4          0            Particles >71μm         ASTM D7647         >3          0            Particles >71μm         ASTM	Water			>0.05	<b>△</b> 0.262	0.021	
Particles >4μm       ASTM D7647        4756          Particles >6μm       ASTM D7647       >1300        ▲ 1517          Particles >14μm       ASTM D7647       >80        28          Particles >21μm       ASTM D7647       >20        4          Particles >38μm       ASTM D7647       >4        0          Particles >71μm       ASTM D7647       >3        0          Oil Cleanliness       ISO 4406 (c)       >/17/13        19/18/12          FLUID DEGRADATION       method       limit/base       current       history1       history2	ppm Water						
Particles >6μm       ASTM D7647       >1300        ▲ 1517          Particles >14μm       ASTM D7647       >80        28          Particles >21μm       ASTM D7647       >20        4          Particles >38μm       ASTM D7647       >4        0          Particles >71μm       ASTM D7647       >3        0          Oil Cleanliness       ISO 4406 (c)       >/17/13        ▲ 19/18/12          FLUID DEGRADATION       method       limit/base       current       history1       history2	FLUID CLEANLIN	NESS	method	limit/base	current	history1	history2
Particles >14μm       ASTM D7647       >80        28          Particles >21μm       ASTM D7647       >20        4          Particles >38μm       ASTM D7647       >4        0          Particles >71μm       ASTM D7647       >3        0          Oil Cleanliness       ISO 4406 (c)       >/17/13        Δ       19/18/12          FLUID DEGRADATION       method       limit/base       current       history1       history2	Particles >4µm		ASTM D7647			4756	
Particles >14μm         ASTM D7647         >80          28            Particles >21μm         ASTM D7647         >20          4            Particles >38μm         ASTM D7647         >4          0            Particles >71μm         ASTM D7647         >3          0            Oil Cleanliness         ISO 4406 (c)         >/17/13          Δ         19/18/12            FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >6µm		ASTM D7647	>1300		<u>▲</u> 1517	
Particles >21μm         ASTM D7647         >20          4            Particles >38μm         ASTM D7647         >4          0            Particles >71μm         ASTM D7647         >3          0            Oil Cleanliness         ISO 4406 (c)         >/17/13          19/18/12            FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >14µm					28	
Particles >38μm       ASTM D7647       >4        0          Particles >71μm       ASTM D7647       >3        0          Oil Cleanliness       ISO 4406 (c)       >/17/13        ▲ 19/18/12          FLUID DEGRADATION       method       limit/base       current       history1       history2							
Particles >71μm         ASTM D7647         >3          0            Oil Cleanliness         ISO 4406 (c)         >/17/13          ▲ 19/18/12            FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >38µm						
Oil Cleanliness ISO 4406 (c) >/17/13 🛕 19/18/12  FLUID DEGRADATION method limit/base current history1 history2	•						
•	Oil Cleanliness						
•	FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
	Acid Number (AN)						



# **OIL ANALYSIS REPORT**







Certificate L2367

Laboratory Sample No. Lab Number **Unique Number** Test Package

: KC83011 : 05937845 : 10628457 : IND 2

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Received Diagnosed Diagnostician

: 29 Aug 2023 : 19 Sep 2023

: Doug Bogart

**MARION MASONARY MATERIALS** 

3855 NE 35TH ST OCALA, FL US 34479

Contact: Service Manager

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)

T: F: