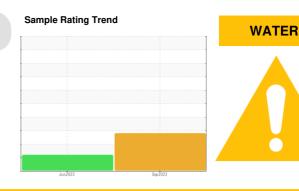


## **PROBLEM SUMMARY**

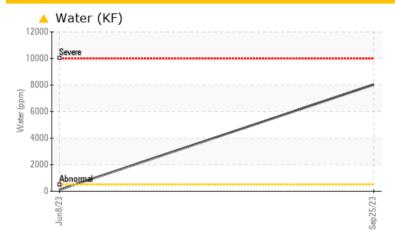
# KAESER 8454054 (S/N 1703)

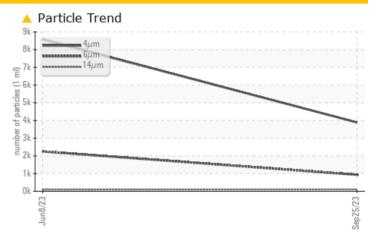
Compressor

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



### **COMPONENT CONDITION SUMMARY**





### RECOMMENDATION

The filter change at the time of sampling has been noted. We advise that you stop the unit and follow the water drain-off procedure for this component. We recommend an early resample in 500 hours to monitor this condition.

PROBLEMATIC <sup>1</sup>	ROBLEMATIC TEST RESULTS							
Sample Status				ABNORMAL	ATTENTION			
Water	%	ASTM D6304	>0.05	<b>△</b> 0.803	0.011			
ppm Water	ppm	ASTM D6304	>500	<b>A</b> 8030	115.4			
Particles >14µm		ASTM D7647	>80	<b>104</b>	<b>△</b> 97			
Particles >21μm		ASTM D7647	>20	<b>△</b> 35	13			
Oil Cleanliness		ISO 4406 (c)	>/17/13	<b>19/17/14</b>	<u>^</u> 20/18/14			
<b>Emulsified Water</b>	scalar	*Visual	>0.05	<b>0.2%</b>	NEG			

**Customer Id: NORBALNY** Sample No.: KCPA006241 Lab Number: 05965398 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Jonathan Hester +1 919-379-4092 x4092 ihester@wearcheckusa.com

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

### **RECOMMENDED ACTIONS**

There are no recommended actions for this sample.

### HISTORICAL DIAGNOSIS

08 Jun 2023 Diag: Don Baldridge

ISO



No corrective action is recommended at this time. The 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.



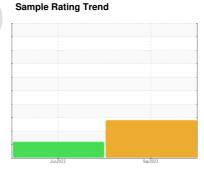


**OIL ANALYSIS REPORT** 

# KAESER 8454054 (S/N 1703)

Compressor

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





### **DIAGNOSIS**

### Recommendation

The filter change at the time of sampling has been noted. We advise that you stop the unit and follow the water drain-off procedure for this component. We recommend an early resample in 500 hours to monitor this condition.

### Wear

All component wear rates are normal.

### Contamination

There is a moderate amount of particulates present in the oil. There is a high concentration of water present in the oil.

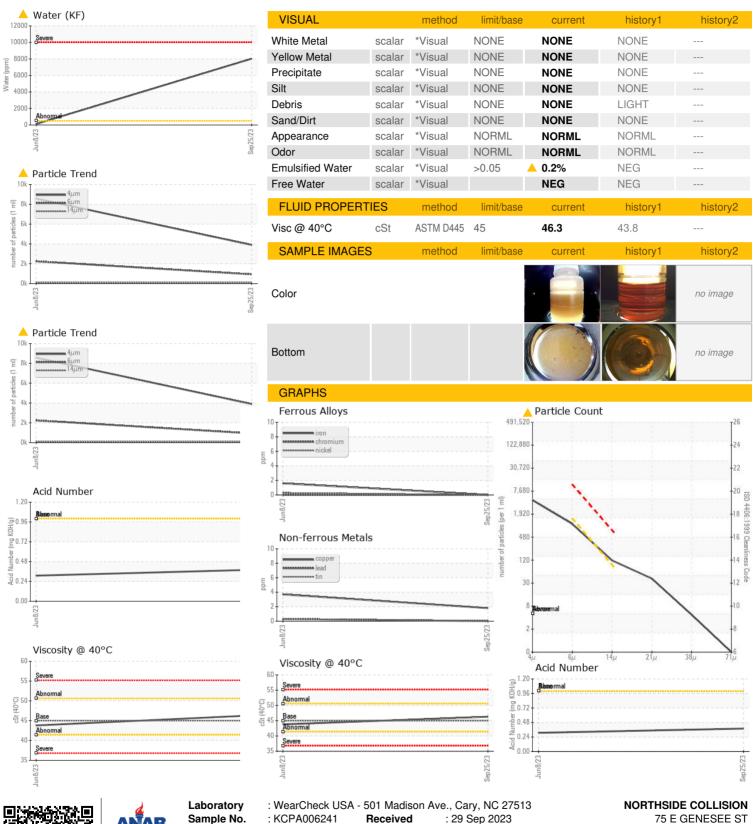
### **Fluid Condition**

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

Sample Number   Client Info   CPA006241   CPA002414   CPA002414   CRPA002414   C				Jun2023	Sep2023			
Sample Date     Client Info   25 Sep 2023   08 Jun 2023     Machine Age   hrs   Client Info   0   0   0   0	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2	
Machine Age   hrs   Client Info   0   0   0   0   0   0   0   0   0	Sample Number		Client Info		KCPA006241	KCPA002414		
Oil Age         hrs         Client Info         NA         N/A         N/A	Sample Date		Client Info		25 Sep 2023	08 Jun 2023		
Cilic   Changed   Cilient   Info   N/A   ABNORMAL   ATTENTION   Colling   Cilient	Machine Age	hrs	Client Info		3615	2632		
Sample Status         ABNORMAL         ATTENTION            WEAR METALS         method         limit/base         current         history1         history2           fron         ppm         ASTM D5185m         >50         0         2            Chromium         ppm         ASTM D5185m         >10         0         0            Sickel         ppm         ASTM D5185m         >3         0         0            Silver         ppm         ASTM D5185m         >2         0         0            Aluminum         ppm         ASTM D5185m         >10         4         0            Aluminum         ppm         ASTM D5185m         >10         4         0            Aluminum         ppm         ASTM D5185m         >50         2         4            Copper         ppm         ASTM D5185m         >50         2         4            Tin         ppm         ASTM D5185m         0         0             Vanadium         ppm         ASTM D5185m         0         0         0	Oil Age	hrs	Client Info		0	0		
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         0         2	Oil Changed		Client Info		N/A	N/A		
Description	Sample Status				ABNORMAL	ATTENTION		
Chromium         ppm         ASTM D5185m         >10         0         0	WEAR METALS		method	limit/base	current	history1	history2	
Nickel	Iron	ppm	ASTM D5185m	>50	0	2		
Description	Chromium	ppm	ASTM D5185m	>10	0	0		
Silver	Nickel	ppm	ASTM D5185m	>3	0	<1		
Asymptotics	Titanium	ppm	ASTM D5185m	>3	0	0		
Lead         ppm         ASTM D5185m         >10         0         <1            Copper         ppm         ASTM D5185m         >50         2         4            Tin         ppm         ASTM D5185m         >50         2         4            Vanadium         ppm         ASTM D5185m         0         0         <1            Cadmium         ppm         ASTM D5185m         0         0         0            ADITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0            Barium         ppm         ASTM D5185m         0         0         3            Magnesium         ppm         ASTM D5185m         0         0         1            Magnesium         ppm         ASTM D5185m         0         0         1            Calcium         ppm         ASTM D5185m         0         2         1            Phosphorus         ppm         ASTM D5185m         0         2 <th< td=""><td>Silver</td><td>ppm</td><td>ASTM D5185m</td><td>&gt;2</td><td>0</td><td>0</td><td></td></th<>	Silver	ppm	ASTM D5185m	>2	0	0		
Copper         ppm         ASTM D5185m         >50         2         4            Tin         ppm         ASTM D5185m         >10         0         <1	Aluminum	ppm	ASTM D5185m	>10	4	0		
Copper         ppm         ASTM D5185m         >50         2         4            Tin         ppm         ASTM D5185m         >10         0         <1	Lead			>10	0	<1		
Tin			ASTM D5185m	>50	2	4		
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         0            Barium         ppm         ASTM D5185m         90         0         3            Molybdenum         ppm         ASTM D5185m         0         0         0            Manganese         ppm         ASTM D5185m         0         0         1            Magnesium         ppm         ASTM D5185m         0         0         1            Magnesium         ppm         ASTM D5185m         0         0         1            Calcium         ppm         ASTM D5185m         0         0         1            Zinc         ppm         ASTM D5185m         0         2         1         1            Sulfur         ppm         ASTM D5185m         23500         18169         18756         <	Tin				_			
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         0         3            Molybdenum         ppm         ASTM D5185m         0         0         0            Magnesium         ppm         ASTM D5185m         0         0         1            Magnesium         ppm         ASTM D5185m         0         0         1            Calcium         ppm         ASTM D5185m         0         2         1            Phosphorus         ppm         ASTM D5185m         0         2         1            Zinc         ppm         ASTM D5185m         0         2         1            Zinc         ppm         ASTM D5185m         0         <1         10            Sulfur         ppm         ASTM D5185m         23500         18169         18756 <t< td=""><td>Vanadium</td><td></td><td></td><td>-</td><td></td><td></td><td></td></t<>	Vanadium			-				
Boron ppm ASTM D5185m 0 0 0 3  Barium ppm ASTM D5185m 90 0 3  Molybdenum ppm ASTM D5185m 0 0 0  Manganese ppm ASTM D5185m 0 0 <-1  Magnesium ppm ASTM D5185m 100 47 41  Calcium ppm ASTM D5185m 0 0 1  Phosphorus ppm ASTM D5185m 0 2 1  Sulfur ppm ASTM D5185m 0 2 1  Sulfur ppm ASTM D5185m 0 18169 18756  CONTAMINANTS method limit/base current history1 history2  Silicon ppm ASTM D5185m 22 2  Sodium ppm ASTM D5185m 20 2 1  FLUID CLEANLINESS method limit/base current history1 history2  FLUID CLEANLINESS method limit/base current history1 history2  Particles >4μm ASTM D7647 3891 8576  FLUID CLEANLINESS method limit/base current history1 history2  Particles >14μm ASTM D7647 >1300 932 2247  Particles >14μm ASTM D7647 >20 Δ 35 13  Particles >38μm ASTM D7647 >4 1  Particles >71μm ASTM D7647 >4 1  Particles >71μm ASTM D7647 >3 0 0 0  Oil Cleanliness ISO 4406 (c) >/17/13 Δ 19/17/14 Δ 20/18/14  FLUID DEGRADATION method limit/base current history1 history2  FLUID DEGRADATION method limit/base current history1 history2	Cadmium				-			
Barium ppm ASTM D5185m 90 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ADDITIVES		method	limit/base	current	history1	history2	
Barium ppm ASTM D5185m 90 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Boron	mqq	ASTM D5185m	0	0	0		
Molybdenum         ppm         ASTM D5185m         0         0            Manganese         ppm         ASTM D5185m         0         <1	Barium		ASTM D5185m	90		3		
Manganese         ppm         ASTM D5185m         0         <1            Magnesium         ppm         ASTM D5185m         100         47         41            Calcium         ppm         ASTM D5185m         0         0         1            Phosphorus         ppm         ASTM D5185m         0         2         1            Zinc         ppm         ASTM D5185m         0         <1	Molybdenum			0	0			
Magnesium         ppm         ASTM D5185m         100         47         41            Calcium         ppm         ASTM D5185m         0         0         1            Phosphorus         ppm         ASTM D5185m         0         2         1            Zinc         ppm         ASTM D5185m         0         <1	-							
Calcium         ppm         ASTM D5185m         0         0         1            Phosphorus         ppm         ASTM D5185m         0         2         1            Zinc         ppm         ASTM D5185m         0         <1	-			100	-			
Phosphorus         ppm         ASTM D5185m         0         2         1            Zinc         ppm         ASTM D5185m         0         <1         10            Sulfur         ppm         ASTM D5185m         23500         18169         18756            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         2         2            Sodium         ppm         ASTM D5185m         >20         <1         4         9            Potassium         ppm         ASTM D5185m         >20         <1         4         9            Water         %         ASTM D5185m         >20         <1         4            Water         %         ASTM D5185m         >20         <1         4         9            Potassium         ppm         ASTM D5185m         >20         <1         4         9            Water         %         ASTM D5185m         >20         <1         4         9 <th cols<="" td=""><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td></th>	<td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	-						
Zinc								
Sulfur         ppm         ASTM D5185m         23500         18169         18756            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         2         2            Sodium         ppm         ASTM D5185m         4         9            Potassium         ppm         ASTM D5185m         >20         <1								
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         2         2            Sodium         ppm         ASTM D5185m         4         9            Potassium         ppm         ASTM D5185m         >20         <1	-							
Silicon ppm ASTM D5185m >25 2 2 Sodium ppm ASTM D5185m		ррпі			18109			
Sodium	CONTAMINANTS		method	limit/base	current	history1	history2	
Potassium         ppm         ASTM D5185m         >20         <1         4            Water         %         ASTM D6304         >0.05         Δ 0.803         0.011            ppm Water         ppm         ASTM D6304         >500         Δ 8030         115.4            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         3891         8576            Particles >6μm         ASTM D7647         >1300         932         Δ 2247            Particles >14μm         ASTM D7647         >80         Δ 104         Δ 97            Particles >21μm         ASTM D7647         >20         Δ 35         13            Particles >38μm         ASTM D7647         >4         4         1            Particles >71μm         ASTM D7647         >3         0         0            Oil Cleanliness         ISO 4406 (c)         >/17/13         19/17/14         20/18/14            FLUID DEGRADATION         method         limit/base         current         history1	Silicon	ppm	ASTM D5185m	>25	2	2		
Water         %         ASTM D6304         >0.05         ▲ 0.803         0.011            ppm Water         ppm         ASTM D6304         >500         ▲ 8030         115.4            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         3891         8576            Particles >6μm         ASTM D7647         >1300         932         Δ 2247            Particles >14μm         ASTM D7647         >80         Δ 104         Δ 97            Particles >21μm         ASTM D7647         >20         Δ 35         13            Particles >38μm         ASTM D7647         >4         4         1            Particles >71μm         ASTM D7647         >3         0         0            Oil Cleanliness         ISO 4406 (c)         >/17/13         19/17/14         Δ 20/18/14            FLUID DEGRADATION         method         limit/base         current         history1         history2	Sodium	ppm	ASTM D5185m		4	9		
ppm Water         ppm ASTM D6304         >500         ▲ 8030         115.4            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         3891         8576            Particles >6μm         ASTM D7647         >1300         932         ≥ 2247            Particles >14μm         ASTM D7647         >80         104         97            Particles >21μm         ASTM D7647         >20         35         13            Particles >38μm         ASTM D7647         >4         4         1            Particles >71μm         ASTM D7647         >3         0         0            Oil Cleanliness         ISO 4406 (c)         >/17/13         19/17/14         ≥ 20/18/14            FLUID DEGRADATION         method         limit/base         current         history1         history2	Potassium	ppm	ASTM D5185m	>20	<1	4		
FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         3891         8576            Particles >6μm         ASTM D7647         >1300         932         22447            Particles >14μm         ASTM D7647         >80         104         97            Particles >21μm         ASTM D7647         >20         35         13            Particles >38μm         ASTM D7647         >4         4         1            Particles >71μm         ASTM D7647         >3         0         0            Oil Cleanliness         ISO 4406 (c)         >/17/13         19/17/14         20/18/14            FLUID DEGRADATION         method         limit/base         current         history1         history2	Water	%	ASTM D6304	>0.05	<b>△</b> 0.803	0.011		
Particles >4μm       ASTM D7647       3891       8576          Particles >6μm       ASTM D7647       >1300       932       ≥ 2247          Particles >14μm       ASTM D7647       >80       104       97          Particles >21μm       ASTM D7647       >20       35       13          Particles >38μm       ASTM D7647       >4       4       1          Particles >71μm       ASTM D7647       >3       0       0          Oil Cleanliness       ISO 4406 (c)       >/17/13       19/17/14       20/18/14          FLUID DEGRADATION       method       limit/base       current       history1       history2	ppm Water	ppm	ASTM D6304	>500	▲ 8030	115.4		
Particles >6μm       ASTM D7647       >1300       932       ≥2247          Particles >14μm       ASTM D7647       >80       ▲ 104       ♠ 97          Particles >21μm       ASTM D7647       >20       ▲ 35       13          Particles >38μm       ASTM D7647       >4       4       1          Particles >71μm       ASTM D7647       >3       0       0          Oil Cleanliness       ISO 4406 (c)       >/17/13       ▲ 19/17/14       ▲ 20/18/14          FLUID DEGRADATION       method       limit/base       current       history1       history2	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2	
Particles >14μm         ASTM D7647         >80         ▲ 104         ♠ 97            Particles >21μm         ASTM D7647         >20         ▲ 35         13            Particles >38μm         ASTM D7647         >4         4         1            Particles >71μm         ASTM D7647         >3         0         0            Oil Cleanliness         ISO 4406 (c)         >/17/13         ▲ 19/17/14         ▲ 20/18/14            FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >4μm		ASTM D7647		3891	8576		
Particles >21μm         ASTM D7647         >20         ▲ 35         13            Particles >38μm         ASTM D7647         >4         4         1            Particles >71μm         ASTM D7647         >3         0         0            Oil Cleanliness         ISO 4406 (c)         >/17/13         ▲ 19/17/14         ▲ 20/18/14            FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >6µm		ASTM D7647	>1300	932	<u>^</u> 2247		
Particles >38μm         ASTM D7647         >4         4         1            Particles >71μm         ASTM D7647         >3         0         0            Oil Cleanliness         ISO 4406 (c)         >/17/13         19/17/14         20/18/14            FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >14μm		ASTM D7647	>80	<u> </u>	<b>4</b> 97		
Particles >71μm         ASTM D7647         >3         0         0            Oil Cleanliness         ISO 4406 (c)         >/17/13         ▲ 19/17/14         ▲ 20/18/14            FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >21μm		ASTM D7647	>20	<b>△</b> 35	13		
Particles >71μm         ASTM D7647         >3         0         0            Oil Cleanliness         ISO 4406 (c)         >/17/13         ▲ 19/17/14         ▲ 20/18/14            FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >38µm		ASTM D7647	>4	4	1		
Oil Cleanliness         ISO 4406 (c)         >/17/13         ▲ 19/17/14         ▲ 20/18/14            FLUID DEGRADATION         method         limit/base         current         history1         history2			ASTM D7647	>3	0	0		
					<b>1</b> 9/17/14	<u>^</u> 20/18/14		
Acid Number (AN) mg KOH/g ASTM D8045 1.0 0.38 0.31	FLUID DEGRADA	TION	method	limit/base	current	history1	history2	
	Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	0.38	0.31		



### **OIL ANALYSIS REPORT**







Certificate L2367

Sample No. Lab Number **Unique Number** 

: 05965398

: KCPA006241 : 10671949

Received

: 05 Oct 2023 Diagnosed

Diagnostician : Jonathan Hester Test Package : IND 2 ( Additional Tests: KF, PrtCount )

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)

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