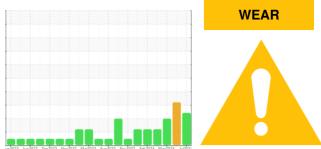


### **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id

# 6840713 (S/N 1277)

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

### DIAGNOSIS

#### Recommendation

We recommend you service the filters on this component. Resample at the next service interval to monitor.

#### 🔺 Wear

The aluminum level is abnormal. All other component wear rates are normal.

#### Contamination

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

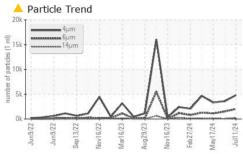
#### Fluid Condition

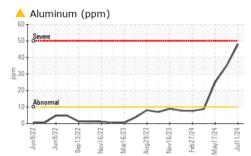
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

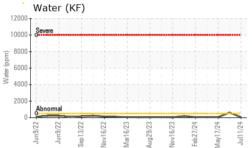
Sample Date     Client Info     I1 Jul 2024     12 Jun 2024     17 May 20       Machine Age     hrs     Client Info     8754     8514     8303       Oil Age     hrs     Client Info     6239     5999     5788       Oil Changed     Client Info     Not Changed     Not Changed     Not Changed     Not Changed       Sample Status     rethod     limit/base     current     history1     nistory1       Iron     ppm     ASTM D5185m     >3     0     0     0       Nickel     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >3     0     0     0       Gopper     ppm     ASTM D5185m     >10     0     0     0     0       Cadmium     ppm     ASTM D5185m     >10     0     0     0     0       Gopper     ppm     ASTM D5185m     >10     0     0     0     0       Gopper     ppm     ASTM D5185m     0	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Date     Client Info     11 Jul 2024     12 Jun 2024     17 May 20       Machine Age     hrs     Client Info     8754     8514     8303       Oil Age     hrs     Client Info     6239     5999     5788       Oil Changed     Client Info     Not Changd     Not Changd     ABNORMAL     ABNORMAL     ABNORMAL       WEAR METALS     method     limit/base     current     history1     history1     history1       Iron     ppm     ASTM D5165m     >3     0     0     0       Nickel     ppm     ASTM D5165m     >3     0     0     0       Sliver     ppm     ASTM D5165m     >10     0     0     0       Aluminum     ppm     ASTM D5165m     >10     0     0     0       Sliver     ppm     ASTM D5165m     >10     0     0     0       Additim     ppm     ASTM D5165m     >10     0     0     0       Capper     ppm     ASTM D5165m     0     0 <td>Sample Number</td> <td></td> <td>Client Info</td> <td></td> <th>KC132379</th> <td>KCPA019177</td> <td>KCPA018183</td>	Sample Number		Client Info		KC132379	KCPA019177	KCPA018183
Oil Age     hrs     Client Info     6239     5999     5788       Oil Changed     Client Info     Not Changd     Not Changd     Not Changd       Sample Status     Imit Pase     current     history1     ABNORMAL       WEAR METALS     method     limit/base     current     history1     history1       Iron     ppm     ASTM D5165m     >50     3     2     <1	Sample Date		Client Info		11 Jul 2024	12 Jun 2024	17 May 2024
Oil Changed Sample Status Client Info Not Changd ABNORMAL Not Changd ABNORMAL Not Changd ABNORMAL Not Changd ABNORMAL   WEAR METALS method limit/base current history1 history1   Iron ppm ASTM 05185m >50 3 2 <1	Machine Age	hrs	Client Info		8754	8514	8303
Sample Status     method     limit/base     current     history1     ABNORMAL     ABNORMAL       WEAR METALS     method     limit/base     current     history1     history1       Iron     ppm     ASTM D5185m     >50     3     2     <1	Oil Age	hrs	Client Info		6239	5999	5788
WEAR METALS     method     limit/base     current     history1     history1       Iron     ppm     ASTM D5185m     >50     3     2     <1	Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Iron     ppm     ASTM D5185m     >50     3     2     <1       Chromium     ppm     ASTM D5185m     >10     0     0     0       Nickel     ppm     ASTM D5185m     >3     0     0     <1	Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
Chromium     ppm     ASTM D5185m     >10     0     0     0       Nickel     ppm     ASTM D5185m     >3     0     0     <1       Silver     ppm     ASTM D5185m     >2     0     0     <1       Silver     ppm     ASTM D5185m     >2     0     0     <1       Aluminum     ppm     ASTM D5185m     >10     0     0     <1       Copper     ppm     ASTM D5185m     0     0     0     <1       Cadmium     ppm     ASTM D5185m     0     0     0     0       Boron     ppm     ASTM D5185m     0     0     0     0       Magnese     ppm     ASTM D5185m     0     0     0     0	WEAR METALS		method	limit/base	current	history1	history2
Nickel     ppm     ASTM D5185m     >3     0     0     0       Titanium     ppm     ASTM D5185m     >3     0     0     <1	Iron	ppm	ASTM D5185m	>50	3	2	<1
Titanium     ppm     ASTM D5185m     >3     0     0     <1       Silver     ppm     ASTM D5185m     >2     0     0     <1	Chromium	ppm	ASTM D5185m	>10	0	0	0
Silver     ppm     ASTM D5185m     >2     0     <1       Aluminum     ppm     ASTM D5185m     >10     ▲ 48     ▲ 35     ▲ 25       Lead     ppm     ASTM D5185m     >10     0     0     <1	Nickel	ppm	ASTM D5185m	>3	0	0	0
Aluminum     ppm     ASTM D5185m     >10     ▲ 48     ▲ 35     ▲ 25       Lead     ppm     ASTM D5185m     >10     0     0     <1	Titanium	ppm	ASTM D5185m	>3	0	0	<1
Lead     ppm     ASTM D5185m     >10     0     0     <1       Copper     ppm     ASTM D5185m     >50     2     1     1       Tin     ppm     ASTM D5185m     >10     0     0     0       Vanadium     ppm     ASTM D5185m     0     0     <1	Silver		ASTM D5185m	>2	0	0	<1
Lead     ppm     ASTM D5185m     >10     0     0     <11       Copper     ppm     ASTM D5185m     >50     2     1     1       Tin     ppm     ASTM D5185m     >10     0     0     0       Vanadium     ppm     ASTM D5185m     0     0     <1	Aluminum	ppm	ASTM D5185m	>10	<u> </u>	▲ 35	<b>A</b> 25
Copper     ppm     ASTM D5185m     >50     2     1     1       Tin     ppm     ASTM D5185m     >10     0     0     0       Vanadium     ppm     ASTM D5185m     0     0     0     <11       Cadmium     ppm     ASTM D5185m     0     0     <1	Lead		ASTM D5185m	>10	0	0	<1
Tin     ppm     ASTM D5185m     >10     0     0     0     <11       Cadmium     ppm     ASTM D5185m     0     0     <1					-		
Vanadium     ppm     ASTM D5185m     0     0     <1       Cadmium     ppm     ASTM D5185m     0     0     <1       ADDITIVES     method     limit/base     current     history1     history1       Boron     ppm     ASTM D5185m     0     0     0     0       Boron     ppm     ASTM D5185m     90     0     0     0     0       Barium     ppm     ASTM D5185m     90     0     0     0     0       Magnesse     ppm     ASTM D5185m     90     0     0     0     0       Magnesium     ppm     ASTM D5185m     90     0     0     0     0       Calcium     ppm     ASTM D5185m     2     0     0     0       Phosphorus     ppm     ASTM D5185m     2     0     0     <1       Silicon     ppm     ASTM D5185m     >25     <1     0     <1       Sodium     ppm     ASTM D5185m     >20     5<	••				_		
Cadmium     ppm     ASTM D5185m     0     0     <1       ADDITIVES     method     limit/base     current     history1     history1       Boron     ppm     ASTM D5185m     0     0     0     0       Barium     ppm     ASTM D5185m     90     0     0     0     0       Barium     ppm     ASTM D5185m     90     0     0     0     0     0       Magnesium     ppm     ASTM D5185m     90     0     0     0     0       Magnesium     ppm     ASTM D5185m     90     0     0     0     0       Contramino     ppm     ASTM D5185m     90     0     0     0     0       Contramino     ppm     ASTM D5185m     22     0     0     0     0       Silicon     ppm     ASTM D5185m     >25     <1     0     <1       Sodium     ppm     ASTM D5185m     >20     5     1     1       Water				-	-		
ADDITIVES     method     limit/base     current     history1     history1       Boron     ppm     ASTM D5185m     0     0     0     0       Barium     ppm     ASTM D5185m     90     0     0     0     0       Malganese     ppm     ASTM D5185m     0     0     0     0     0       Magnesium     ppm     ASTM D5185m     90     0     0     0     0       Calcium     ppm     ASTM D5185m     90     0     0     0     0       Phosphorus     ppm     ASTM D5185m     2     0     0     0     0       Silicon     ppm     ASTM D5185m     22     0     0     <1					-		
Boron     ppm     ASTM D5185m     0     0     0       Barium     ppm     ASTM D5185m     90     0     0     0       Molybdenum     ppm     ASTM D5185m     0     0     0     0       Manganese     ppm     ASTM D5185m     90     0     0     0     <1		le le	method	limit/base	-		
Barium     ppm     ASTM D5185m     90     0     0     0     0       Molybdenum     ppm     ASTM D5185m     0     0     0     0       Magnesium     ppm     ASTM D5185m     90     0     0     0     <1							
Molybdenum     ppm     ASTM D5185m     0     0     0       Manganese     ppm     ASTM D5185m     90     0     0     <1				00	-		
Manganese     ppm     ASTM D5185m     0     0     <<1       Magnesium     ppm     ASTM D5185m     90     0<				90	-		÷
Magnesium     ppm     ASTM D5185m     90     0     0     0     0       Calcium     ppm     ASTM D5185m     2     0     0     0     0       Phosphorus     ppm     ASTM D5185m     123     134     134     134       Zinc     ppm     ASTM D5185m     123     134     134     134       CONTAMINANTS     method     limit/base     current     history1     history1       Silicon     ppm     ASTM D5185m     >25     <1	-				-		-
Calcium     ppm     ASTM D5185m     2     0     0     0       Phosphorus     ppm     ASTM D5185m     123     134     134       Zinc     ppm     ASTM D5185m     14     18     11       CONTAMINANTS     method     limit/base     current     history1     history1       Silicon     ppm     ASTM D5185m     >25     <1	0				-		
Phosphorus     ppm     ASTM D5185m     123     134     134       Zinc     ppm     ASTM D5185m     14     18     11       CONTAMINANTS     method     limit/base     current     history1     history1       Silicon     ppm     ASTM D5185m     >25     <1     0     <1       Sodium     ppm     ASTM D5185m     >25     <1     0     <1       Sodium     ppm     ASTM D5185m     >20     5     1     1       Water     %     ASTM D5185m     >20     5     1     1       Water     %     ASTM D6304     >0.05     0.005     0.061     0.006       ppm     ASTM D6304     >500     58     610     61       FLUID CLEANLINESS     method     limit/base     current     history1     history1       Particles >4µm     ASTM D7647     >1300     2018     1497     1123       Particles >6µm     ASTM D7647     >80     223     51     94       Part	0				-		
ZincppmASTM D5185m141811CONTAMINANTSmethodlimit/basecurrenthistory1history1SiliconppmASTM D5185m>25<1				2	-		
CONTAMINANTSmethodlimit/basecurrenthistory1history1SiliconppmASTM D5185m>25<1					-		
Silicon   ppm   ASTM D5185m   >25   <1   0   <1     Sodium   ppm   ASTM D5185m   >20   5   1   1     Potassium   ppm   ASTM D5185m   >20   5   1   1     Water   %   ASTM D6304   >0.05   0.005   △ 0.061   0.006     ppm Water   ppm   ASTM D6304   >500   58   △ 610   61     FLUID CLEANLINESS   method   limit/base   current   history1   history1     Particles >4µm   ASTM D7647   >1300   △ 2018   1497   1123     Particles >6µm   ASTM D7647   >80   △ 223   51   94     Particles >21µm   ASTM D7647   >20   △ 45   4   26     Particles >38µm   ASTM D7647   >4   1   1   1     Particles >71µm   ASTM D7647   >3   0   0   0					14	18	11
Sodium     ppm     ASTM D5185m     8     5     4       Potassium     ppm     ASTM D5185m     >20     5     1     1       Water     %     ASTM D6304     >0.05     0.005     △ 0.061     0.006       ppm     ASTM D6304     >500     58     △ 610     61       FLUID CLEANLINESS     method     limit/base     current     history1     history1       Particles >4µm     ASTM D7647     >1300     △ 2018     1497     1123       Particles >6µm     ASTM D7647     >80     △ 223     51     94       Particles >21µm     ASTM D7647     >20     ▲ 45     4     26       Particles >38µm     ASTM D7647     >3     0     0     0							history2
Potassium     ppm     ASTM D5185m     >20     5     1     1       Water     %     ASTM D6304     >0.05     0.005     0.061     0.006       ppm     ASTM D6304     >500     58     610     61       FLUID CLEANLINESS     method     limit/base     current     history1     history1       Particles >4µm     ASTM D7647     >1300     2018     1497     1123       Particles >6µm     ASTM D7647     >80     223     51     94       Particles >21µm     ASTM D7647     >20     45     4     26       Particles >38µm     ASTM D7647     >4     1     1     1       Particles >71µm     ASTM D7647     >3     0     0     0				>25			
Water     %     ASTM D6304     >0.05     0.005     0.061     0.006       ppm Water     ppm     ASTM D6304     >500     58     610     61       FLUID CLEANLINESS     method     limit/base     current     history1     history1       Particles >4µm     ASTM D7647     4804     3576     3311       Particles >6µm     ASTM D7647     >1300     2018     1497     1123       Particles >14µm     ASTM D7647     >80     223     51     94       Particles >21µm     ASTM D7647     >20     445     4     26       Particles >38µm     ASTM D7647     >4     1     1     1       Particles >71µm     ASTM D7647     >3     0     0     0		ppm			-		
ppm Water     ppm     ASTM D6304     >500     58     ▲ 610     61       FLUID CLEANLINESS     method     limit/base     current     history1     history1       Particles >4µm     ASTM D7647     4804     3576     3311       Particles >6µm     ASTM D7647     >1300     2018     1497     1123       Particles >14µm     ASTM D7647     >80     223     51     94       Particles >21µm     ASTM D7647     >20     45     4     26       Particles >38µm     ASTM D7647     >4     1     1     1       Particles >71µm     ASTM D7647     >3     0     0     0					-		
FLUID CLEANLINESS   method   limit/base   current   history1   history1     Particles >4µm   ASTM D7647   4804   3576   3311     Particles >6µm   ASTM D7647   >1300   2018   1497   1123     Particles >14µm   ASTM D7647   >80   223   51   94     Particles >21µm   ASTM D7647   >20   45   4   26     Particles >38µm   ASTM D7647   >4   1   1     Particles >71µm   ASTM D7647   >3   0   0		%					
Particles >4μm     ASTM D7647     4804     3576     3311       Particles >6μm     ASTM D7647     >1300     2018     1497     1123       Particles >14μm     ASTM D7647     >80     223     51     94       Particles >21μm     ASTM D7647     >20     45     4     26       Particles >38μm     ASTM D7647     >4     1     1     1       Particles >71μm     ASTM D7647     >3     0     0     0	ppm Water	ppm	ASTM D6304	>500	58	<b>▲</b> 610	
Particles >6μm     ASTM D7647     >1300     2018     1497     1123       Particles >14μm     ASTM D7647     >80     223     51     94       Particles >21μm     ASTM D7647     >20     45     4     26       Particles >38μm     ASTM D7647     >4     1     1     1       Particles >71μm     ASTM D7647     >3     0     0     0	FLUID CLEANLIN	ESS	method	limit/base	current		history2
Particles >14μm     ASTM D7647     >80     Δ 223     51     94       Particles >21μm     ASTM D7647     >20     Δ 45     4     26       Particles >38μm     ASTM D7647     >4     1     1     1       Particles >71μm     ASTM D7647     >3     0     0     0	Particles >4µm		ASTM D7647		4804	3576	
Particles >21μm     ASTM D7647     >20     45     4     26       Particles >38μm     ASTM D7647     >4     1     1     1       Particles >71μm     ASTM D7647     >3     0     0     0	Particles >6µm		ASTM D7647	>1300	<u> </u>	1497	1123
Particles >38μm     ASTM D7647     >4     1     1     1       Particles >71μm     ASTM D7647     >3     0     0     0	Particles >14µm		ASTM D7647	>80	<b>A</b> 223	51	94
Particles >71μm     ASTM D7647     >3     0     0     0	Particles >21µm		ASTM D7647	>20	<u> </u>	4	26
the second se	Particles >38µm		ASTM D7647	>4	1	1	1
Oil Cleanliness ISO 4406 (c) >/17/13 A 19/18/15 019/18/13 19/17/1	Particles >71µm		ASTM D7647	>3	0	0	0
	Oil Cleanliness		ISO 4406 (c)	>/17/13	<b>19/18/15</b>	9/18/13	9/17/14
FLUID DEGRADATION method limit/base current history1 history	FLUID DEGRADA		method	limit/base	current	history1	history2
Acid Number (AN) mg KOH/g ASTM D8045 0.4 0.86 0.94 0.81	Acid Number (AN)	mg KOH/g	ASTM D8045	0.4	0.86		

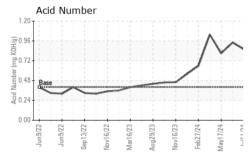


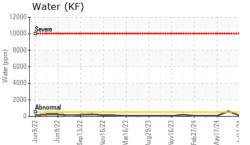
## **OIL ANALYSIS REPORT**







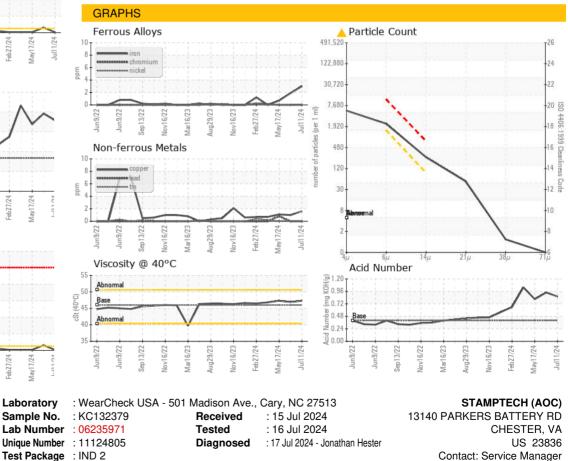


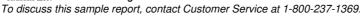




Certificate 12367

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	NONE	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	0.2%	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	46	47.3	46.9	47.3
SAMPLE IMAGES	S	method	limit/base	current	history1	history2
Color					•	





\* - 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)

Report Id: STACHE [WUSCAR] 06235971 (Generated: 07/17/2024 13:15:41) Rev: 1

Contact/Location: Service Manager - STACHE Page 2 of 2

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