

# **OIL ANALYSIS REPORT**

## Sample Rating Trend

ISO

Machine Id **KAESER 5050656** Component

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

#### DIAGNOSIS

#### Recommendation

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.

# Wear

All component wear rates are normal.

# Contamination

There is a high amount of particulates present in the oil. Moderate concentration of visible dirt/debris present in the oil.

## Fluid Condition

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

Machine Age Dil Age     hrs     Client Info     56547     36634        Oil Age     hrs     Client Info     S134     5004        Sample Status     Client Info     Not Changd     Changed        WEAR METALS     method     Imil/base     current     history1        Chromium     ppm     ASTM D5185m     >3     0     0        Alluminum     ppm     ASTM D5185m     >10     0     <-1        Lead     ppm     ASTM D5185m     >10     0     <-1        Antimory     ppm     ASTM D5185m     0     0     0							
SAMPLE INFORMATION     method     limit/base     current     history1       Sample Number     Client Info     14 Mar 2024     30 Jun 2021        Machine Age     hrs     Client Info     56547     36634        Machine Age     hrs     Client Info     5134     5004        Oil Age     hrs     Client Info     Not Change     Changed							
SAMPLE INFORMATION     method     limit/base     current     history1       Sample Number     Client Info     KCPA015706     KCPA3701        Sample Date     Client Info     14 Mar 2024     80 Jun 2021        Machine Age     hrs     Client Info     56547     36634        Oil Age     hrs     Client Info     Not Changd     Changd        Oil Changed     Client Info     Not Changd     Changd      Mathine        Oil Changed     Client Info     Not Changd     Changd							
Sample Number     Client Info     KCPA015706     KCP3701        Sample Date     Client Info     14 Mar 2024     30 Jun 2021        Machine Age     hrs     Client Info     56547     36634        Oil Age     hrs     Client Info     5134     5004        Sample Status     Client Info     Not Changd     Changed        WEAR METALS     method     limit/base     current     history1        Machine Age     ppm     ASTM D5185m     >10     0     -1     -1       Aluminum     ppm     ASTM D5185m     >10     0     -1        Aluminum     ppm     ASTM D5185m     >10     0      0       Antimon				Jun2021	Mar2024		
Sample DateClient Info14 Mar 202430 Jun 2021Machine AgehrsClient Info5654736634Oil AgehrsClient InfoNot ChangdChangdSample Statusclient InfoNot ChangdChangdSample Statusclient InfoNot ChangdChangdWEAR METALSmethodlimit/basecurrenthistory1WEAR METALSmethodlimit/basecurrenthistory1NickelppmASTM D5185m>5001NickelppmASTM D5185m>300AluminumppmASTM D5185m>100-1AluminumppmASTM D5185m>100-1AntimonyppmASTM D5185m>100-1AntimonyppmASTM D5185m>100-1AntimonyppmASTM D5185m000AntimonyppmASTM D5185m000AggnesiumppmASTM D5185m000AggnesiumppmASTM D5185m000MolybdenumppmASTM D5185m00MolybdenumppmASTM D5185m00MolybdenumppmASTM D5185m00 </th <th>MPLE INFORMA</th> <th>ATION me</th> <th>ethod</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	MPLE INFORMA	ATION me	ethod	limit/base	current	history1	history2
Machine Age Oil AgehrsClient Info5654736634Oil AgehrsClient InfoNot ChangdChangedSample StatusClient InfoNot ChangdABNORMALABNORMALWEAR METALSmethodlimit/basecurrenthistory1WEAR METALSmethodlimit/basecurrenthistory1WEAR METALSmethodlimit/basecurrenthistory1WEAR METALSmethodlimit/basecurrenthistory1NickelpmASTM D5185m>5001NickelpmASTM D5185m>1000SilverpmASTM D5185m>100AluminumppmASTM D5185m>100LeadppmASTM D5185m>100 <t< td=""><td>ole Number</td><td>Clie</td><td>nt Info</td><td></td><td>KCPA015706</td><td>KCP33701</td><td></td></t<>	ole Number	Clie	nt Info		KCPA015706	KCP33701	
Oil Age Oil AgehrsClient Info51345004Oil ChangedClient InfoNot Changd ABNORMALChangedSample StatusImather Client InfoNot Changd ABNORMALABNORMALWEAR METALSmethodlimit/basecurrenthistory1WEAR METALSmethodlimit/basecurrenthistory1NickelppmASTM D5185m>300NickelppmASTM D5185m>300SilverppmASTM D5185m>20<-1	ole Date	Clie	nt Info		14 Mar 2024	30 Jun 2021	
Dil Changed Sample StatusClient Info ellent InfoNot Changd ABNORMALChanged ABNORMALWEAR METALSmethodlimit/basecurrenthistory1WEAR METALSmethodlimit/basecurrenthistory1IronppmASTM D5185m>5001NickelppmASTM D5185m>300NickelppmASTM D5185m>300AluminumppmASTM D5185m>100<1	nine Age h	hrs Clie	nt Info		56547	36634	
Sample StatusImage: statusABNORMALABNORMALABNORMALWEAR METALSmethodlimit/basecurrenthistory1ironppmASTM D5185m>5001ChromiumppmASTM D5185m>300NickelppmASTM D5185m>300SilverppmASTM D5185m>1000SilverppmASTM D5185m>1000LeadppmASTM D5185m>1000CopperppmASTM D5185m>1000TinppmASTM D5185m>1000CadmiumppmASTM D5185m>1000ADDITVESmethodlimit/basecurrenthistory1BariumppmASTM D5185m0013BariumppmASTM D5185m9000MaganeseppmASTM D5185m9002CalciumppmASTM D5185m900<1	ge h	nrs Clier	nt Info		5134	5004	
WEAR METALS     method     limit/base     current     history1       iron     ppm     ASTM D5185m     >50     0     1       Chromium     ppm     ASTM D5185m     >3     0     0       Nickel     ppm     ASTM D5185m     >3     0     0       Silver     ppm     ASTM D5185m     >2     0     <1	hanged	Clier	nt Info		Not Changd	Changed	
ron     ppm     ASTM D5185m     >50     0     1       Chromium     ppm     ASTM D5185m     >10     0     0       Nickel     ppm     ASTM D5185m     >3     0     0       Silver     ppm     ASTM D5185m     >2     0     <1	ole Status				ABNORMAL	ABNORMAL	
Chromium     ppm     ASTM D5185m     >10     0     0       Nickel     ppm     ASTM D5185m     >3     0     0       Nickel     ppm     ASTM D5185m     >3     0     0       Silver     ppm     ASTM D5185m     >2     0     <1	AR METALS	me	ethod	limit/base	current	history1	history2
Nickel     ppm     ASTM D5185m     >3     0     0       Titanium     ppm     ASTM D5185m     >3     0     0     1       Silver     ppm     ASTM D5185m     >2     0     <1	р	opm ASTM	l D5185m	>50	0	1	
Name     ppm     ASTM D5185m     >3     0     0       Silver     ppm     ASTM D5185m     >2     0     <1	mium p	opm ASTM	l D5185m	>10	0	0	
Silver     ppm     ASTM D5185m     >2     0     <1       Aluminum     ppm     ASTM D5185m     >10     0     <1	el p	opm ASTM	I D5185m	>3	0	0	
Aluminum     ppm     ASTM D5185m     >10     0     <1       Lead     ppm     ASTM D5185m     >10     0     0       Copper     ppm     ASTM D5185m     >50     9     10     10       Tin     ppm     ASTM D5185m     >10     0     <1	ium p	opm ASTM	l D5185m	>3	0	0	
Lead     ppm     ASTM D5185m     >10     0     0       Copper     ppm     ASTM D5185m     >50     9     10     10       Tin     ppm     ASTM D5185m     >10     0     <1	r p	opm ASTM	I D5185m	>2	0	<1	
Copper     ppm     ASTM D5185m     >50     9     10       Tin     ppm     ASTM D5185m     >10     0     <1	inum p	opm ASTM	l D5185m	>10	0	<1	
Tin     ppm     ASTM D5185m     >10     0     <1       Antimony     ppm     ASTM D5185m      0     0     0       Vanadium     ppm     ASTM D5185m     <1	р	opm ASTM	I D5185m	>10	0	0	
Antimony     ppm     ASTM D5185m      0       Vanadium     ppm     ASTM D5185m     <1	per p	opm ASTM	l D5185m	>50	9	10	
VanadiumppmASTM D5185m<10CadmiumppmASTM D5185m000ADDITIVESmethodlimit/basecurrenthistory1BoronppmASTM D5185m013BariumppmASTM D5185m00MolybdenumppmASTM D5185m00MaganeseppmASTM D5185m00MagnesiumppmASTM D5185m00PhosphorusppmASTM D5185m02ZincppmASTM D5185m20SulfurppmASTM D5185m20SulfurppmASTM D5185m20SodiumppmASTM D5185m222PotassiumppmASTM D5185m222PotassiumppmASTM D5185m222PotassiumppmASTM D5185m20<1	р	opm ASTM	l D5185m	>10	0	<1	
Cadmium     ppm     ASTM D5185m     0     0       ADDITIVES     method     limit/base     current     history1       Boron     ppm     ASTM D5185m     0     13       Barium     ppm     ASTM D5185m     90     0     0       Molybdenum     ppm     ASTM D5185m     90     0     0       Magnesium     ppm     ASTM D5185m     90     0     0       Magnesium     ppm     ASTM D5185m     90     0     2       Calcium     ppm     ASTM D5185m     90     0     2       Calcium     ppm     ASTM D5185m     20     0     1       Zinc     ppm     ASTM D5185m     2     0     0       Sulfur     ppm     ASTM D5185m     2     1     0       Soliton     ppm     ASTM D5185m     >20     <1     1       Silicon     ppm     ASTM D5185m     >20     <1     0       Sodium     ppm     ASTM D6304     >0.05	nony p	opm ASTM	l D5185m			0	
ADDITIVESmethodlimit/basecurrenthistory1BoronppmASTM D5185m013BariumppmASTM D5185m9000MolybdenumppmASTM D5185m00MaganeseppmASTM D5185m00MagnesiumppmASTM D5185m900MagnesiumppmASTM D5185m900PhosphorusppmASTM D5185m20PhosphorusppmASTM D5185m20SulfurppmASTM D5185m20SulfurppmASTM D5185m20SoliconppmASTM D5185m222PotassiumppmASTM D5185m222PotassiumppmASTM D5185m222PotassiumppmASTM D5185m222PotassiumppmASTM D5185m222PotassiumppmASTM D5185m222PotassiumppmASTM D6304>0.050.0060.011ppm WaterppASTM D6304>50064111.7FLUID CLEANLINESSmethodlimit/basecurrenthistory1Particles >4µmASTM D7647>3018465Particles >14µmASTM D7647>801944Particles >21µmASTM D7647>30Particles >38µmASTM D7647>30Particles >71µm <td>idium p</td> <td>opm ASTM</td> <td>l D5185m</td> <td></td> <td>&lt;1</td> <td>0</td> <td></td>	idium p	opm ASTM	l D5185m		<1	0	
Boron     ppm     ASTM D5185m     0     13       Barium     ppm     ASTM D5185m     90     0     0     0       Molybdenum     ppm     ASTM D5185m     90     0     0     0       Marganese     ppm     ASTM D5185m     90     0     0     0       Magnesium     ppm     ASTM D5185m     90     0     2     0     0       Calcium     ppm     ASTM D5185m     90     0     <12	nium p	opm ASTM	l D5185m		0	0	
Barium     ppm     ASTM D5185m     90     0     0     0       Molybdenum     ppm     ASTM D5185m     0     0     0       Manganese     ppm     ASTM D5185m     90     0     2       Magnesium     ppm     ASTM D5185m     90     0     2       Calcium     ppm     ASTM D5185m     2     0     0       Zinc     ppm     ASTM D5185m     2     0     0       Sulfur     ppm     ASTM D5185m     >25     <1     0       Sulfur     ppm     ASTM D5185m     >20     <1     1       Sulfur     ppm     ASTM D5185m     >20     <1     1       Sulfur     ppm     ASTM D5185m     >20     <1     1       Vater	DITIVES	me	ethod	limit/base	current	history1	history2
Molybdenum     ppm     ASTM D5185m     0     0       Manganese     ppm     ASTM D5185m     90     0     2       Magnesium     ppm     ASTM D5185m     90     0     2       Calcium     ppm     ASTM D5185m     2     0     0       Phosphorus     ppm     ASTM D5185m     2     0     2       Phosphorus     ppm     ASTM D5185m     2     0     2       Zinc     ppm     ASTM D5185m     2     0     2       Sulfur     ppm     ASTM D5185m     22     0     2       Sulfur     ppm     ASTM D5185m     >25     <1	n p	opm ASTM	l D5185m		0	13	
Manganese   ppm   ASTM D5185m   0   0     Magnesium   ppm   ASTM D5185m   90   0   2     Calcium   ppm   ASTM D5185m   90   0   2     Calcium   ppm   ASTM D5185m   2   0   0     Phosphorus   ppm   ASTM D5185m   0   <1     Zinc   ppm   ASTM D5185m   0   <1     Sulfur   ppm   ASTM D5185m   2   0   0     Sulfur   ppm   ASTM D5185m   2   0   0     CONTAMINANTS   method   limit/base   current   history1     Silicon   ppm   ASTM D5185m   >25   <1   0     Sodium   ppm   ASTM D5185m   >20   <1   <1     Water   %   ASTM D6304   >0.05   0.006   0.011     opm Water   ppm   ASTM D7647   54048      Particles >4µm   ASTM D7647   >1300   184655      Particles >6µm   ASTM D7647   20   535 <td>ım p</td> <td>opm ASTM</td> <td>l D5185m</td> <td>90</td> <td>0</td> <td>0</td> <td></td>	ım p	opm ASTM	l D5185m	90	0	0	
Magnesium     ppm     ASTM D5185m     90     0     2       Calcium     ppm     ASTM D5185m     2     0     0       Phosphorus     ppm     ASTM D5185m     2     0        Zinc     ppm     ASTM D5185m     0     <1	bdenum p	opm ASTM	l D5185m		0	0	
Calcium     ppm     ASTM D5185m     2     0     0       Phosphorus     ppm     ASTM D5185m     0     <1	,	opm ASTM	I D5185m		-		
Phosphorus     ppm     ASTM D5185m     0     <1       Zinc     ppm     ASTM D5185m     2     0       Sulfur     ppm     ASTM D5185m     2     0       Sulfur     ppm     ASTM D5185m     18459     15086       CONTAMINANTS     method     limit/base     current     history1       Silicon     ppm     ASTM D5185m     >25     <1     0       Sodium     ppm     ASTM D5185m     >25     <1     0       Sodium     ppm     ASTM D5185m     >20     <1     <1       Potassium     ppm     ASTM D5185m     >20     <1     <1       Water     %     ASTM D5185m     >20     <1     <1       ppm     ASTM D6304     >0.05     0.006     0.011       opm     ASTM D6304     >500     64     111.7       FLUID CLEANLINESS     method     limit/base     current     history1       Particles >4µm     ASTM D7647     >1300     18465		· [· ·			-		
Zinc   ppm   ASTM D5185m   2   0     Sulfur   ppm   ASTM D5185m   18459   15086     CONTAMINANTS   method   limit/base   current   history1     Silicon   ppm   ASTM D5185m   >25   <1				2	-	0	
SulfurppmASTM D5185m1845915086CONTAMINANTSmethodlimit/basecurrenthistory1SiliconppmASTM D5185m<>25<1		· [· ·			-		
CONTAMINANTS     method     limit/base     current     history1       Silicon     ppm     ASTM D5185m     >25     <1					_		
Silicon   ppm   ASTM D5185m   >25   <1   0     Sodium   ppm   ASTM D5185m   20   <1   21   2     Potassium   ppm   ASTM D5185m   >20   <1   <1   <1     Water   %   ASTM D6304   >0.05   0.006   0.011      opm Water   ppm   ASTM D6304   >500   64   111.7     FLUID CLEANLINESS   method   limit/base   current   history1     Particles >4µm   ASTM D7647   >1300   18465      Particles >6µm   ASTM D7647   >80   1944      Particles >21µm   ASTM D7647   >4   20      Particles >38µm   ASTM D7647   >3   0	r p	opm ASTM	l D5185m		18459	15086	
Sodium     ppm     ASTM D5185m     2     2       Potassium     ppm     ASTM D5185m     >20     <1     <1       Water     %     ASTM D6304     >0.05     0.006     0.011       opm Water     ppm     ASTM D6304     >500     64     111.7       FLUID CLEANLINESS     method     limit/base     current     history1       Particles >4µm     ASTM D7647     >1300     18465        Particles >6µm     ASTM D7647     >80     1944        Particles >21µm     ASTM D7647     >20     535        Particles >38µm     ASTM D7647     >4     20        Particles >71µm     ASTM D7647     >3     0	NTAMINANTS	me	ethod	limit/base	current	history1	history2
Potassium     ppm     ASTM D5185m     >20     <1     <1       Water     %     ASTM D6304     >0.05     0.006     0.011       opm Water     ppm     ASTM D6304     >500     64     111.7       FLUID CLEANLINESS     method     limit/base     current     history1       Particles >4µm     ASTM D7647     >1300     18465        Particles >6µm     ASTM D7647     >80     1944        Particles >14µm     ASTM D7647     >20     535        Particles >21µm     ASTM D7647     >4     20        Particles >38µm     ASTM D7647     >3     0	on p	opm ASTM	I D5185m	>25	<1	0	
Water     %     ASTM D6304     >0.05     0.006     0.011       opm Water     ppm     ASTM D6304     >500     64     111.7       FLUID CLEANLINESS     method     limit/base     current     history1       Particles >4µm     ASTM D7647     54048        Particles >6µm     ASTM D7647     >1300     18465        Particles >6µm     ASTM D7647     >80     1944        Particles >21µm     ASTM D7647     >20     535        Particles >38µm     ASTM D7647     >4     20        Particles >71µm     ASTM D7647     >3     0	um p	opm ASTM	l D5185m		2	2	
opm Water     ppm     ASTM D6304     >500     64     111.7       FLUID CLEANLINESS     method     limit/base     current     history1       Particles >4µm     ASTM D7647     >1300     18465        Particles >6µm     ASTM D7647     >80     1944        Particles >14µm     ASTM D7647     >20     535        Particles >21µm     ASTM D7647     >4     20        Particles >38µm     ASTM D7647     >3     0	1		I D5185m	>20	<1	<1	
FLUID CLEANLINESS   method   limit/base   current   history1     Particles >4µm   ASTM D7647   54048      Particles >6µm   ASTM D7647   >1300   18465      Particles >6µm   ASTM D7647   >80   1944      Particles >14µm   ASTM D7647   >20   535      Particles >21µm   ASTM D7647   >4   20      Particles >38µm   ASTM D7647   >3   0					0.006	0.011	
Particles >4μm   ASTM D7647   54048      Particles >6μm   ASTM D7647   >1300   18465      Particles >6μm   ASTM D7647   >80   1944      Particles >14μm   ASTM D7647   >20   535      Particles >21μm   ASTM D7647   >4   20      Particles >38μm   ASTM D7647   >3   0	Water p	opm ASTN	/I D6304	>500	64	111.7	
Particles >6μm     ASTM D7647     >1300     18465        Particles >14μm     ASTM D7647     >80     1944        Particles >14μm     ASTM D7647     >20     535        Particles >21μm     ASTM D7647     >4     20        Particles >38μm     ASTM D7647     >3     0	JID CLEANLINES	SS me	ethod	limit/base	current	history1	history2
Particles >14μm     ASTM D7647     >80     1944        Particles >21μm     ASTM D7647     >20     535        Particles >38μm     ASTM D7647     >4     20        Particles >71μm     ASTM D7647     >3     0	cles >4µm	ASTN	/I D7647		54048		
Particles >21μm     ASTM D7647     >20     535        Particles >38μm     ASTM D7647     >4     20        Particles >37μm     ASTM D7647     >3     0		ASTN	/I D7647	>1300	<u> </u>		
Particles >38μm     ASTM D7647     >4     Δ 20        Particles >71μm     ASTM D7647     >3     0	cles >14µm	ASTN	/I D7647	>80			
Particles >71μm     ASTM D7647     >3     0	cles >21µm	ASTN	/I D7647	>20			
	cles >38µm			>4			
				>3	0		
Oil Cleanliness ISO 4406 (c) >/17/13 ▲ 23/21/18	leanliness	ISO 4	4406 (c)	>/17/13	<b>A</b> 23/21/18		
FLUID DEGRADATION method limit/base current history1	JID DEGRADATI	<mark>ION</mark> me	ethod	limit/base	current	history1	history2
Acid Number (AN)     mg KOH/g     ASTM D8045     0.4     0.46     0.414	Number (AN) m	ng KOH/g ASTN	/I D8045	0.4	0.46	0.414	

Contact/Location: VENKAT YARLAGADDA - SOFINO

Report Id: SOFINO [WUSCAR] 06134047 (Generated: 04/03/2024 13:15:32) Rev: 1



60

50

40 ă

1 1 301

20

10

0

1200

1000

600 Water 400

200

0.50

(B/HO) Ē0.3

Pio 0.1

0.00

1000

600 Water (

4000

200

52

5

48

(0-04) 45 40°C) B

43

4(

3

Ň

Abnorma

Built for a lifetime



