

# **OIL ANALYSIS REPORT**

## Sample Rating Trend



Machine Id 6371495 (S/N 1882) Component Compressor

Fluid 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. We were unable to perform a particle count on this sample.

# Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination 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     06 Nov 2023     01 Mar 2022     14 Apr 2021       Machine Age     hrs     Client Info     13940     9551     5239       Oll Age     hrs     Client Info     N/A     Changed     Not Changed       Sample Status     Client Info     N/A     Changed     Not Changed       VerAR METALS     method     limit/base     current     history1     ABNORMAL       VEAR METALS     method     limit/base     current     history1     ABNORMAL       Chromium     ppm     ASTM 05185m     >10     0     0     0       Nickel     ppm     ASTM 05185m     >3     0     0     0       Aluminum     ppm     ASTM 05185m     >10     3     <1     <1       Lead     ppm     ASTM 05185m     >10     0     0     10       Antimony     ppm     ASTM 05185m     >10     <1     0     <1       Antimony     ppm     ASTM 05185m     >0     0     0     0			0ct202	0 Apr2021	Mar2022 No	v2023	
Sample Date     Client Info     06 Nov 2023     01 Mar 2021     14 Apr 2021       Machine Age     hrs     Client Info     13940     9551     5239       Oil Age     hrs     Client Info     0     3000     3000       Sample Status     Client Info     N/A     Changed     ABNORMAL     ABNORMAL       WEAR METALS     method     limit/base     current     history1     ABNORMAL       Nickel     ppm     ASTM 05155m     >50     0     <1     <1       Chromium     ppm     ASTM 05155m     >3     0     0     0       Nickel     ppm     ASTM 05155m     >3     0     0     0       Autimium     ppm     ASTM 05155m     >10     3     <1     <1       Lead     ppm     ASTM 05155m     >10     0     <1     0       Cadmium     ppm     ASTM 05155m     >0     0     0     0       Astmostistm     0     0     0     0     0     0	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age     hrs     Client Info     13940     9551     5239       Oil Age     hrs     Client Info     0     3000     3000       Oil Age     Client Info     N/A     Changed     Not Changed       Sample Status     Image     Client Info     N/A     Changed     ABNORMAL     ABNORMAL     ABNORMAL       WEAR METALS     method     Imit/base     current     history1     history2       Iron     ppm     ASTM 05185m     >30     0     0     0       Nickel     ppm     ASTM 05185m     >33     0     0     0       Sliver     ppm     ASTM 05185m     >10     3     <1	Sample Number		Client Info		KCPA006453	KCP38279	KCP11029
Oil Age     hrs     Client Info     0     3000     3000       Oil Changed     Client Info     N/A     Changed     Not Changed       Sample Status     Client Info     N/A     Changed     Not Changed       WEAR METALS     method     limit/base     current     history1     history1       Iron     ppm     ASTM 05185m     >50     0     <1	Sample Date		Client Info		06 Nov 2023	01 Mar 2022	14 Apr 2021
Oil Changed Sample Status     Client Info     N/A     Changed ABNORMAL     Not Changed ABNORMAL       Nickel     ppm     ASTM 05185m     >10     0     0     0       Nickel     ppm     ASTM 05185m     >3     0     0     0       Auminum     ppm     ASTM 05185m     >10     3     <1	Machine Age	hrs	Client Info		13940	9551	5239
Oil Changed Sample Status     Client Info     N/A     Changed ABNORMAL     Not Changed ABNORMAL       Nickel     ppm     ASTM 05185m     >10     0     0     0       Nickel     ppm     ASTM 05185m     >3     0     0     0       Auminum     ppm     ASTM 05185m     >10     3     <1	Oil Age	hrs	Client Info		0	3000	3000
Sample Status     NORMAL     ABNORMAL     ABNORMAL     ABNORMAL       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5165m     >50     0     <1	-		Client Info		N/A	Changed	Not Changd
Iron     ppm     ASTM D5185m     >50     0     <1     <1       Chromium     ppm     ASTM D5185m     >30     0     0     0       Nickel     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >10     3     <1	Sample Status				NORMAL		ABNORMAL
Chromium     ppm     ASTM D5185m     >10     0     0     0       Nickel     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >2     0     <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel     ppm     ASTM D5185m     >3     0     0     0       Titanium     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >10     3     <1	Iron	ppm	ASTM D5185m	>50	0	<1	<1
Titanium     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >2     0     <1	Chromium	ppm	ASTM D5185m	>10	0	0	0
Silver     ppm     ASTM D5185m     >2     0     <1     0       Aluminum     ppm     ASTM D5185m     >10     3     <1	Nickel	ppm	ASTM D5185m	>3	0	0	0
Aluminum     ppm     ASTM D5185m     >10     3     <1     <1       Lead     ppm     ASTM D5185m     >10     0     0     <1	Titanium	ppm	ASTM D5185m	>3	0	0	0
Lead     ppm     ASTM D5185m     >10     0     0     <11       Copper     ppm     ASTM D5185m     >50     9     11     3       Tin     ppm     ASTM D5185m     >10     <1	Silver	ppm	ASTM D5185m	>2	0	<1	0
Lead     ppm     ASTM D5185m     >10     0     0     <11       Copper     ppm     ASTM D5185m     >50     9     11     3       Tin     ppm     ASTM D5185m     >10     <1	Aluminum	ppm	ASTM D5185m	>10	3	<1	<1
Copper     ppm     ASTM D5185m     >50     9     11     3       Tin     ppm     ASTM D5185m     >10     <1	Lead		ASTM D5185m	>10	0	0	<1
Tin     ppm     ASTM D5185m     >10     <1     0     <1       Antimony     ppm     ASTM D5185m      0     0       Vanadium     ppm     ASTM D5185m     <1					-		
Antimony     ppm     ASTM D5185m      0     0       Vanadium     ppm     ASTM D5185m     <1	Tin				<1	0	<1
Vanadium     ppm     ASTM D5185m     <1     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0     0     0     10       Barium     ppm     ASTM D5185m     90     0     0     0     0     0       Molybdenum     ppm     ASTM D5185m     90     0     0     0     0       Maganese     ppm     ASTM D5185m     0     0     0     0     0       Magnesium     ppm     ASTM D5185m     2     0     0     0     0       Zinc     ppm     ASTM D5185m     2     0     0     0     0       Sulfur     ppm     ASTM D5185m     1     1     0     1       Sulfur     ppm     ASTM D5185m     2     <1     1     0     1       Sulfur	Antimony					0	
Cadmium     ppm     ASTM D5185m     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0     0     10       Barium     ppm     ASTM D5185m     0     0     0     0     0       Molybdenum     ppm     ASTM D5185m     0     0     0     0     0       Manganese     ppm     ASTM D5185m     0     0     0     0     0       Manganese     ppm     ASTM D5185m     0     5     21       Calcium     ppm     ASTM D5185m     0     5     21       Zinc     ppm     ASTM D5185m     0     5     21       Zinc     ppm     ASTM D5185m     1     1     0     1       Sulfur     ppm     ASTM D5185m     20     0     5     6       Solicon     ppm     ASTM D5185m     20     0     5     6	-				-1		
ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0     10       Barium     ppm     ASTM D5185m     90     0     0     <1							
Boron     ppm     ASTM D5185m     O     0     10       Barium     ppm     ASTM D5185m     90     0     0     0     <1       Molybdenum     ppm     ASTM D5185m     0     0     0     0     0       Marganese     ppm     ASTM D5185m     90     0     12     53       Calcium     ppm     ASTM D5185m     90     0     12     53       Calcium     ppm     ASTM D5185m     90     0     5     21       Calcium     ppm     ASTM D5185m     0     5     21     37       Start     ppm     ASTM D5185m     17     57     37       Sulfur     ppm     ASTM D5185m     16572     15952     18282       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     0     5     6       Water     p/%     ASTM D5185m     20     0.013     0.038 <td></td> <td>ppm</td> <td></td> <td>limit/baco</td> <th></th> <td></td> <td></td>		ppm		limit/baco			
Barium     ppm     ASTM D5185m     90     0     0     <1       Molybdenum     ppm     ASTM D5185m     0     0     0     0       Magnesium     ppm     ASTM D5185m     90     0     12     53       Calcium     ppm     ASTM D5185m     90     0     12     53       Calcium     ppm     ASTM D5185m     2     0     0     0       Phosphorus     ppm     ASTM D5185m     2     0     0     0       Zinc     ppm     ASTM D5185m     17     57     37       Sulfur     ppm     ASTM D5185m     16572     15952     18282       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     <1				mmubase			
Molybdenum     ppm     ASTM D5185m     0     0     0       Manganese     ppm     ASTM D5185m     90     0     12     53       Calcium     ppm     ASTM D5185m     90     0     12     53       Calcium     ppm     ASTM D5185m     2     0     0     0       Phosphorus     ppm     ASTM D5185m     0     5     21       Zinc     ppm     ASTM D5185m     0     5     21       Zinc     ppm     ASTM D5185m     16572     15952     18282       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     1     10     17       Potassium     ppm     ASTM D5185m     20     0     5     6       Water     %     ASTM D6304     >0.05     0.021     0.013     0.038       ppm Water     ppm     ASTM D7647      10639     16925  Particles >4µm     ASTM D7647				00			
Marganese     ppm     ASTM D5185m     0     0     0     0       Magnesium     ppm     ASTM D5185m     90     0     12     53       Calcium     ppm     ASTM D5185m     2     0     0     0       Phosphorus     ppm     ASTM D5185m     0     5     21       Zinc     ppm     ASTM D5185m     0     5     21       Sulfur     ppm     ASTM D5185m     17     57     37       Sulfur     ppm     ASTM D5185m     16572     15952     18282       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     <1				90	-		
Magnesium     ppm     ASTM D5185m     90     0     12     53       Calcium     ppm     ASTM D5185m     2     0     0     0       Phosphorus     ppm     ASTM D5185m     0     5     21       Zinc     ppm     ASTM D5185m     0     5     21       Sulfur     ppm     ASTM D5185m     16572     15952     18282       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     <1	•						
Calcium     ppm     ASTM D5185m     2     0     0     0       Phosphorus     ppm     ASTM D5185m     0     5     21       Zinc     ppm     ASTM D5185m     17     57     37       Sulfur     ppm     ASTM D5185m     16572     15952     18282       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     <1	-			00	-		-
Phosphorus     ppm     ASTM D5185m     0     5     21       Zinc     ppm     ASTM D5185m     17     57     37       Sulfur     ppm     ASTM D5185m     16572     15952     18282       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     <1	-						
Zinc     ppm     ASTM D5185m     17     57     37       Sulfur     ppm     ASTM D5185m     16572     15952     18282       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     <1				2	-		
Sulfur     ppm     ASTM D5185m     16572     15952     18282       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     <1							
CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     <1	-						
Silicon     ppm     ASTM D5185m     >25     <1     1     0       Sodium     ppm     ASTM D5185m     >20     1     10     17       Potassium     ppm     ASTM D5185m     >20     0     5     6       Water     %     ASTM D6304     >0.05     0.021     0.013     0.038       ppm Water     ppm     ASTM D6304     >500     211.7     134.1     381.1       FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647     >1300      4     6701     4     5381       Particles >6µm     ASTM D7647     >80      4     627     4     633       Particles >14µm     ASTM D7647     >20      4     627     4     633       Particles >38µm     ASTM D7647     >3      3     1     1       Oil Cleanliness     ISO 4406 (c)     >/17/13      3     1     20/17 <td></td> <td></td> <td>ASTM D5185m</td> <td></td> <th>16572</th> <td>15952</td> <td>18282</td>			ASTM D5185m		16572	15952	18282
Sodium     ppm     ASTM D5185m     1     10     17       Potassium     ppm     ASTM D5185m     >20     0     5     6       Water     %     ASTM D6304     >0.05     0.021     0.013     0.038       ppm Water     ppm     ASTM D6304     >500     211.7     134.1     381.1       FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647      10639     16925       Particles >6µm     ASTM D7647      4     6701     4     5381       Particles >6µm     ASTM D7647     >80      4     2450     4     807       Particles >14µm     ASTM D7647     >20      4     627     263       Particles >38µm     ASTM D7647      3     17       Particles >71µm     ASTM D7647      3     1     001       Oil Cleanliness     ISO 4406 (c)     >/17/13      3     20/1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium     ppm     ASTM D5185m     >20     0     5     6       Water     %     ASTM D6304     >0.05     0.021     0.013     0.038       ppm Water     ppm     ASTM D6304     >500     211.7     134.1     381.1       FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647      10639     16925       Particles >6µm     ASTM D7647      4     6701     5381       Particles >14µm     ASTM D7647     >80      4     627     263       Particles >21µm     ASTM D7647     >20      4     627     263       Particles >21µm     ASTM D7647     >3      3     1       Particles >71µm     ASTM D7647     >3      3     1       Oil Cleanliness     ISO 4406 (c)     >/17/13      20/18     20/17       FLUID DEGRADATION     method     limit/base     current     history1	Silicon	ppm	ASTM D5185m	>25	<1	1	
Water     %     ASTM D6304     >0.05     0.021     0.013     0.038       ppm Water     ppm     ASTM D6304     >500     211.7     134.1     381.1       FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647      10639     16925       Particles >6µm     ASTM D7647     >1300      6701     5381       Particles >14µm     ASTM D7647     >80      627     263       Particles >21µm     ASTM D7647     >20      627     263       Particles >38µm     ASTM D7647     >3      3     1       Oil Cleanliness     ISO 4406 (c)     >/17/13      20/18     20/17       FLUID DEGRADATION     method     limit/base     current     history1     history2	Sodium		ASTM D5185m		1	10	17
ppm Water     ppm     ASTM D6304     >500     211.7     134.1     381.1       FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647      10639     16925       Particles >6µm     ASTM D7647     >1300      4 6701     5381       Particles >14µm     ASTM D7647     >80      4 2450     807       Particles >14µm     ASTM D7647     >20      4 627     263       Particles >38µm     ASTM D7647     >4      3 62     17       Particles >38µm     ASTM D7647     >3      3 1     1       Oil Cleanliness     ISO 4406 (c)     >/17/13      4 20/18     20/17       FLUID DEGRADATION     method     limit/base     current     history1     history2	Potassium	ppm	ASTM D5185m	>20	0	5	6
FLUID CLEANLINESS   method   limit/base   current   history1   history2     Particles >4µm   ASTM D7647    10639   16925     Particles >6µm   ASTM D7647   >1300    6701   5381     Particles >14µm   ASTM D7647   >80    2450   807     Particles >21µm   ASTM D7647   >20    627   263     Particles >38µm   ASTM D7647   >4    56   17     Particles >71µm   ASTM D7647   >3    3   1     Oil Cleanliness   ISO 4406 (c)   >/17/13    20/18   20/17     FLUID DEGRADATION   method   limit/base   current   history1   history2	Water	%	ASTM D6304	>0.05	0.021	0.013	0.038
Particles >4µm   ASTM D7647    10639   16925     Particles >6µm   ASTM D7647   >1300    6701   5381     Particles >14µm   ASTM D7647   >80    2450   807     Particles >21µm   ASTM D7647   >20    627   263     Particles >38µm   ASTM D7647   >4    56   17     Particles >71µm   ASTM D7647   >3    3   1     Oil Cleanliness   ISO 4406 (c)   >/17/13    20/18   20/17	ppm Water	ppm	ASTM D6304	>500	211.7	134.1	381.1
Particles >6μm   ASTM D7647   >1300    ▲ 6701   ▲ 5381     Particles >14μm   ASTM D7647   >80    ▲ 2450   ▲ 807     Particles >21μm   ASTM D7647   >20    ▲ 627   ▲ 263     Particles >38μm   ASTM D7647   >4    ▲ 56   ▲ 17     Particles >71μm   ASTM D7647   >3    3   1     Oil Cleanliness   ISO 4406 (c)   >/17/13    ▲ 20/18   ▲ 20/17     FLUID DEGRADATION   method   limit/base   current   history1   history2	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >14µm   ASTM D7647   >80    ▲ 2450   ▲ 807     Particles >21µm   ASTM D7647   >20    ▲ 627   ▲ 263     Particles >38µm   ASTM D7647   >4    ▲ 56   ▲ 17     Particles >71µm   ASTM D7647   >3    3   1     Oil Cleanliness   ISO 4406 (c)   >/17/13    ▲ 20/18   ▲ 20/17     FLUID DEGRADATION   method   limit/base   current   history1   history2	Particles >4µm		ASTM D7647			10639	16925
Particles >21μm     ASTM D7647     >20      627     263       Particles >38μm     ASTM D7647     >4      56     17       Particles >71μm     ASTM D7647     >3      3     1       Oil Cleanliness     ISO 4406 (c)     >/17/13      20/18     20/17       FLUID DEGRADATION     method     limit/base     current     history1     history2			ASTM D7647	>1300		<b>6701</b>	<b>6</b> 5381
Particles >38μm     ASTM D7647     >4      ▲ 56     ▲ 17       Particles >71μm     ASTM D7647     >3      3     1       Oil Cleanliness     ISO 4406 (c)     >/17/13      ▲ 20/18     ▲ 20/17       FLUID DEGRADATION     method     limit/base     current     history1     history2	Particles >14µm		ASTM D7647	>80		🔺 2450	<b>A</b> 807
Particles >71μmASTM D7647>331Oil CleanlinessISO 4406 (c)>/17/13Δ 20/18Δ 20/17FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	Particles >21µm		ASTM D7647	>20		<b>6</b> 27	<b>A</b> 263
Oil Cleanliness   ISO 4406 (c)   >/17/13    A 20/18   A 20/17     FLUID DEGRADATION   method   limit/base   current   history1   history2	Particles >38µm		ASTM D7647	>4		<u>▲</u> 56	<b>1</b> 7
Oil Cleanliness   ISO 4406 (c) >/17/13	Particles >71µm		ASTM D7647	>3		3	1
						▲ 20/18	▲ 20/17
Acid Number (AN)     mg KOH/g     ASTM D8045     0.4     0.34     0.37     0.362	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045	0.4	0.34	0.37	0.362

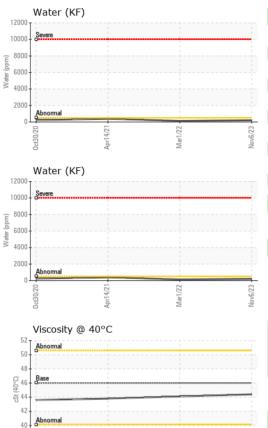
Report Id: PILWIN [WUSCAR] 06012403 (Generated: 11/21/2023 19:19:06) Rev: 1

Contact/Location: THOMAS STONER JR - PILWIN



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# **OIL ANALYSIS REPORT**



Apr14/21.

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	MODER	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	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	TIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	46	44.4	44.1	43.8
SAMPLE IMAGES	S	method	limit/base	current	history1	history2
Color						

Bottom

