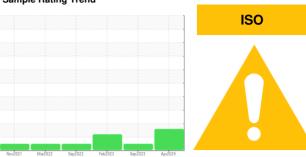


# **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id

## **KAESER 7354426**

Component Compressor

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

### **DIAGNOSIS**

#### Recommendation

Oil and 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 moderate 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 INFORMATION         method         limit/base         current         history1         history2           Sample Number         Client Info         KCPA016894         KCP48184D         KCP52455           Sample Date         Client Info         05 Apr 2022         05 Sep 2023         23 Feb 2023           Machine Age         hrs         Client Info         21247         16735         13857           Oil Age         hrs         Client Info         Changed         Changed         Changed           Sample Status         Tenthod         Imitibase         current         history1         history2           Iron         ppm         ASTM 05185m         >50         <1         0         0           VEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM 05185m         >3         <1         0         0           Chromium         ppm         ASTM 05185m         >3         <1         0         0           Iricalium         ppm         ASTM 05185m         >3         <1         0         0           Silver         ppm         ASTM 05185m         >10         1         0         <1<			Nov2021	Mar2022 Sep2022	Feb2023 Sep2023	Apr2024	
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   21247   16735   13857	Sample Number		Client Info		KCPA016894	KCP48184D	KCP52455
Oil Age         hrs         Client Info         8000         4000         3000           Oil Changed Sample Status         Client Info         Changed Chang	Sample Date		Client Info		05 Apr 2024	05 Sep 2023	23 Feb 2023
Oil Changed Sample Status         Client Info         Changed ABNORMAL ADRIMAL ATTENTION         Changed ABNORMAL NORMAL NORMAL ATTENTION         Changed ABNORMAL NORMAL NO	Machine Age	hrs	Client Info		21247	16735	13857
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         <1	Oil Age	hrs	Client Info		8000	4000	3000
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         <1	Oil Changed		Client Info		Changed	Changed	Changed
Iron	Sample Status				ABNORMAL	NORMAL	ATTENTION
Chromium         ppm         ASTM D5185m         >10         <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >3 <1 <1 0 0 0 Silver ppm ASTM D5185m >3 <1 0 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Iron	ppm	ASTM D5185m	>50	<1	0	0
Titanium   ppm   ASTM D5185m   >3	Chromium	ppm	ASTM D5185m	>10	<1	0	0
Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >10         1         0         <1           Lead         ppm         ASTM D5185m         >10         1         0         0           Copper         ppm         ASTM D5185m         >50         7         <1         <1           Tin         ppm         ASTM D5185m         >50         7         <1         <1         0           Vanadium         ppm         ASTM D5185m         >10         1         <1         0         0           Cadmium         ppm         ASTM D5185m         <1         0         0         0           Boron         ppm         ASTM D5185m         0         0         0         0         0           Barium         ppm         ASTM D5185m         0         1         0         0         0           Boron         ppm         ASTM D5185m         0         1         0         0         0           Barium         ppm         ASTM D5185m         0         1         0         0         0           Golicum         ppm	Nickel	ppm	ASTM D5185m	>3	<1	<1	0
Aluminum         ppm         ASTM D5185m         >10         1         0         <1           Lead         ppm         ASTM D5185m         >10         1         0         0           Copper         ppm         ASTM D5185m         >50         7         <1	Titanium	ppm	ASTM D5185m	>3	<1	0	0
Lead         ppm         ASTM D5185m         >10         1         0         0           Copper         ppm         ASTM D5185m         >50         7         <1         <1           Tin         ppm         ASTM D5185m         >10         1         <1         0           Vanadium         ppm         ASTM D5185m         <1         0         0           Cadmium         ppm         ASTM D5185m         <1         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0           Barium         ppm         ASTM D5185m         90         24         36         45           Molybdenum         ppm         ASTM D5185m         0         1         0         0           Magnesium         ppm         ASTM D5185m         0         1         1         0           Calcium         ppm         ASTM D5185m         0         4         1         2           Phosphorus         ppm         ASTM D5185m         0         4         6         <1	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper         ppm         ASTM D5185m         >50         7         <1         <1           Tin         ppm         ASTM D5185m         >10         1         <1	Aluminum	ppm	ASTM D5185m	>10	1	0	<1
Copper         ppm         ASTM D5185m         >50         7         <1         <1           Tin         ppm         ASTM D5185m         >10         1         <1	Lead	ppm	ASTM D5185m	>10	1	0	0
Tin ppm ASTM D5185m	Copper		ASTM D5185m	>50	7	<1	<1
Vanadium         ppm         ASTM D5185m         <1         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0           Barium         ppm         ASTM D5185m         90         24         36         45           Molybdenum         ppm         ASTM D5185m         0         1         0         0           Manganese         ppm         ASTM D5185m         0         1         1         0         0           Manganesium         ppm         ASTM D5185m         100         69         68         102           Calcium         ppm         ASTM D5185m         0         4         1         2           Phosphorus         ppm         ASTM D5185m         0         4         6         <1	Tin		ASTM D5185m	>10	1	<1	0
Cadmium         ppm         ASTM D5185m         <1         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0           Barium         ppm         ASTM D5185m         90         24         36         45           Molybdenum         ppm         ASTM D5185m         0         1         0         0           Marganese         ppm         ASTM D5185m         0         1         0         0           Magnesium         ppm         ASTM D5185m         100         69         68         102           Calcium         ppm         ASTM D5185m         0         4         1         2           Phosphorus         ppm         ASTM D5185m         0         4         6         <1	Vanadium		ASTM D5185m		<1	0	0
Boron         ppm         ASTM D5185m         0         0         0         0           Barium         ppm         ASTM D5185m         90         24         36         45           Molybdenum         ppm         ASTM D5185m         0         1         0         0           Manganese         ppm         ASTM D5185m         100         69         68         102           Calcium         ppm         ASTM D5185m         100         69         68         102           Calcium         ppm         ASTM D5185m         0         4         1         2           Phosphorus         ppm         ASTM D5185m         0         4         6         <1           Zinc         ppm         ASTM D5185m         0         9         5         26           Sulfur         ppm         ASTM D5185m         23500         20890         23478         24059           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         <1         1         1           Sodium         ppm         ASTM D5185m         >20         5	Cadmium				<1	0	0
Barium         ppm         ASTM D5185m         90         24         36         45           Molybdenum         ppm         ASTM D5185m         0         1         0         0           Manganese         ppm         ASTM D5185m         100         69         68         102           Calcium         ppm         ASTM D5185m         100         69         68         102           Calcium         ppm         ASTM D5185m         0         4         1         2           Phosphorus         ppm         ASTM D5185m         0         4         6         <1           Zinc         ppm         ASTM D5185m         0         9         5         26           Sulfur         ppm         ASTM D5185m         23500         20890         23478         24059           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         <1         1         1           Sodium         ppm         ASTM D5185m         >25         <1         1         1           Sodium         ppm         ASTM D51	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         0         1         0         0           Manganese         ppm         ASTM D5185m         < -1         <1         1           Magnesium         ppm         ASTM D5185m         100         69         68         102           Calcium         ppm         ASTM D5185m         0         4         1         2           Phosphorus         ppm         ASTM D5185m         0         4         6         <1           Zinc         ppm         ASTM D5185m         0         9         5         26           Sulfur         ppm         ASTM D5185m         0         9         5         26           Sulfur         ppm         ASTM D5185m         23500         20890         23478         24059           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         <1         1         1           Sodium         ppm         ASTM D5185m         >20         5         4         7           Water         %         ASTM D5185m         >20         5         4	Boron	ppm	ASTM D5185m	0	0	0	0
Manganese         ppm         ASTM D5185m         <1         <1         1           Magnesium         ppm         ASTM D5185m         100         69         68         102           Calcium         ppm         ASTM D5185m         0         4         1         2           Phosphorus         ppm         ASTM D5185m         0         4         6         <1           Zinc         ppm         ASTM D5185m         0         9         5         26           Sulfur         ppm         ASTM D5185m         23500         20890         23478         24059           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         23500         20890         23478         24059           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         225         <1         1         1           Sodium         ppm         ASTM D5185m         >20         5         4         7           Water         %         ASTM D6185m         >20         0	Barium	ppm	ASTM D5185m	90	24	36	45
Magnesium         ppm         ASTM D5185m         100         69         68         102           Calcium         ppm         ASTM D5185m         0         4         1         2           Phosphorus         ppm         ASTM D5185m         0         4         6         <1           Zinc         ppm         ASTM D5185m         0         9         5         26           Sulfur         ppm         ASTM D5185m         23500         20890         23478         24059           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         <1         1         1           Sodium         ppm         ASTM D5185m         >25         <1         1         1           Sodium         ppm         ASTM D5185m         >20         5         4         7           Water         %         ASTM D5185m         >20         5         4         7           Water         %         ASTM D6304         >0.020         0.036         0.018           ppm Water         ppm         ASTM D6304         >500         208         360.7<	Molybdenum	ppm	ASTM D5185m	0	1	0	0
Calcium         ppm         ASTM D5185m         0         4         1         2           Phosphorus         ppm         ASTM D5185m         0         4         6         <1           Zinc         ppm         ASTM D5185m         0         9         5         26           Sulfur         ppm         ASTM D5185m         23500         20890         23478         24059           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         <1         1         1           Sodium         ppm         ASTM D5185m         >25         <1         1         1           Sodium         ppm         ASTM D5185m         >20         5         4         7           Water         %         ASTM D5185m         >20         5         4         7           Water         %         ASTM D5185m         >20         5         4         7           Water         %         ASTM D6304         >0.05         0.020         0.036         0.018           ppm Water         ppm         ASTM D6304         >500         208	Manganese	ppm	ASTM D5185m		<1	<1	1
Phosphorus         ppm         ASTM D5185m         0         4         6         <1           Zinc         ppm         ASTM D5185m         0         9         5         26           Sulfur         ppm         ASTM D5185m         23500         20890         23478         24059           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         <1         1         1           Sodium         ppm         ASTM D5185m         >25         <1         1         1           Potassium         ppm         ASTM D5185m         >20         5         4         7           Water         %         ASTM D6304         >0.05         0.020         0.036         0.018           FLUID CLEANLINESS         method         limit/base         current	Magnesium	ppm	ASTM D5185m	100	69	68	102
Phosphorus         ppm         ASTM D5185m         0         4         6         <1           Zinc         ppm         ASTM D5185m         0         9         5         26           Sulfur         ppm         ASTM D5185m         23500         20890         23478         24059           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         <1         1         1           Sodium         ppm         ASTM D5185m         >20         5         4         7           Water         %         ASTM D5185m         >20         5         4         7           Water         %         ASTM D6304         >0.05         0.020         0.036         0.018           ppm Water         ppm         ASTM D6304         >500         208         360.7         188.9           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >1300         7689         494         2337           Particles >21µm         ASTM D7647         >20         88	Calcium	ppm	ASTM D5185m	0	4	1	2
Zinc         ppm         ASTM D5185m         0         9         5         26           Sulfur         ppm         ASTM D5185m         23500         20890         23478         24059           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         <1	Phosphorus		ASTM D5185m	0	4	6	<1
Sulfur         ppm         ASTM D5185m         23500         20890         23478         24059           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         <1		ppm	ASTM D5185m	0	9	5	26
Silicon         ppm         ASTM D5185m         >25         <1         1         1           Sodium         ppm         ASTM D5185m         13         18         14           Potassium         ppm         ASTM D5185m         >20         5         4         7           Water         %         ASTM D6304         >0.05         0.020         0.036         0.018           ppm Water         ppm         ASTM D6304         >500         208         360.7         188.9           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >1300         7689         494         2337           Particles >21μm         ASTM D7647         >80         419         35         97           Particles >21μm         ASTM D7647         >20         88         6         22           Particles >71μm         ASTM D7647         >3         0         0         0           Oil Cleanliness         ISO 4406 (c)         >/17/13         22/20/16         18/16/12         20/18/14           FLUID DEGRADATION         method         limit/base         current         history1         h	Sulfur		ASTM D5185m	23500	20890	23478	24059
Sodium         ppm         ASTM D5185m         13         18         14           Potassium         ppm         ASTM D5185m         >20         5         4         7           Water         %         ASTM D6304         >0.05         0.020         0.036         0.018           ppm Water         ppm         ASTM D6304         >500         208         360.7         188.9           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         30387         1573         7494           Particles >6μm         ASTM D7647         >1300         7689         494         2337           Particles >14μm         ASTM D7647         >80         419         35         97           Particles >21μm         ASTM D7647         >20         88         6         22           Particles >38μm         ASTM D7647         >4         2         0         1           Particles >71μm         ASTM D7647         >3         0         0         0           Oil Cleanliness         ISO 4406 (c)         >/17/13         22/20/16         18/16/12         20/18/14           FLUID DEG	CONTAMINANTS		method	limit/base	current	history1	history2
Sodium         ppm         ASTM D5185m         13         18         14           Potassium         ppm         ASTM D5185m         >20         5         4         7           Water         %         ASTM D6304         >0.05         0.020         0.036         0.018           ppm Water         ppm         ASTM D6304         >500         208         360.7         188.9           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         30387         1573         7494           Particles >6μm         ASTM D7647         >1300         7689         494         2337           Particles >14μm         ASTM D7647         >80         419         35         97           Particles >21μm         ASTM D7647         >20         88         6         22           Particles >38μm         ASTM D7647         >4         2         0         1           Particles >71μm         ASTM D7647         >3         0         0         0           Oil Cleanliness         ISO 4406 (c)         >/17/13         22/20/16         18/16/12         20/18/14           FLUID DEG	Silicon	ppm	ASTM D5185m	>25	<1	1	1
Potassium         ppm         ASTM D5185m         >20         5         4         7           Water         %         ASTM D6304         >0.05         0.020         0.036         0.018           ppm Water         ppm         ASTM D6304         >500         208         360.7         188.9           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >1300         ↑7689         494         2337           Particles >6μm         ASTM D7647         >80         ▲ 419         35         97           Particles >21μm         ASTM D7647         >20         ▲ 88         6         22           Particles >38μm         ASTM D7647         >4         2         0         1           Particles >71μm         ASTM D7647         >3         0         0         0           Oil Cleanliness         ISO 4406 (c)         >/17/13         22/20/16         18/16/12         20/18/14           FLUID DEGRADATION         method         limit/base         current         history1         history2						18	
Water         %         ASTM D6304 > 0.05         0.020         0.036         0.018           ppm Water         ppm ASTM D6304 > 500         208         360.7         188.9           FLUID CLEANLINESS method limit/base current history1 history2           Particles >4μm         ASTM D7647         30387         1573         7494           Particles >6μm         ASTM D7647 > 1300         7689         494         2337           Particles >14μm         ASTM D7647 > 80         419         35         97           Particles >21μm         ASTM D7647 > 20         88         6         22           Particles >38μm         ASTM D7647 > 4         2         0         1           Particles >71μm         ASTM D7647 > 3         0         0         0           Oil Cleanliness         ISO 4406 (c) >/17/13         22/20/16         18/16/12         20/18/14           FLUID DEGRADATION         method         limit/base         current         history1         history2				>20			
ppm Water         ppm         ASTM D6304         >500         208         360.7         188.9           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         30387         1573         7494           Particles >6μm         ASTM D7647         >1300         7689         494         2337           Particles >14μm         ASTM D7647         >80         419         35         97           Particles >21μm         ASTM D7647         >20         88         6         22           Particles >38μm         ASTM D7647         >4         2         0         1           Particles >71μm         ASTM D7647         >3         0         0         0           Oil Cleanliness         ISO 4406 (c)         >/17/13         22/20/16         18/16/12         20/18/14           FLUID DEGRADATION         method         limit/base         current         history1         history2					_	0.036	0.018
Particles >4μm       ASTM D7647       30387       1573       7494         Particles >6μm       ASTM D7647       >1300       7689       494       2337         Particles >14μm       ASTM D7647       >80       419       35       97         Particles >21μm       ASTM D7647       >20       88       6       22         Particles >38μm       ASTM D7647       >4       2       0       1         Particles >71μm       ASTM D7647       >3       0       0       0         Oil Cleanliness       ISO 4406 (c)       >/17/13       22/20/16       18/16/12       20/18/14         FLUID DEGRADATION       method       limit/base       current       history1       history2							
Particles >6μm       ASTM D7647       >1300       ▲ 7689       494       2337         Particles >14μm       ASTM D7647       >80       ▲ 419       35       97         Particles >21μm       ASTM D7647       >20       ▲ 88       6       22         Particles >38μm       ASTM D7647       >4       2       0       1         Particles >71μm       ASTM D7647       >3       0       0       0         Oil Cleanliness       ISO 4406 (c)       >/17/13       ▲ 22/20/16       18/16/12       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         ▲ 419         35         97           Particles >21μm         ASTM D7647         >20         ▲ 88         6         22           Particles >38μm         ASTM D7647         >4         2         0         1           Particles >71μm         ASTM D7647         >3         0         0         0           Oil Cleanliness         ISO 4406 (c)         >/17/13         ▲ 22/20/16         18/16/12         ≥ 20/18/14           FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >4µm		ASTM D7647		30387	1573	7494
Particles >21μm         ASTM D7647         >20         ▲ 88         6         22           Particles >38μm         ASTM D7647         >4         2         0         1           Particles >71μm         ASTM D7647         >3         0         0         0           Oil Cleanliness         ISO 4406 (c)         >/17/13         22/20/16         18/16/12         20/18/14           FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >6µm		ASTM D7647	>1300	<b>^</b> 7689	494	2337
Particles >38μm         ASTM D7647         >4         2         0         1           Particles >71μm         ASTM D7647         >3         0         0         0           Oil Cleanliness         ISO 4406 (c)         >/17/13         Δ 22/20/16         18/16/12         20/18/14           FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >14μm		ASTM D7647	>80	<b>419</b>	35	97
Particles >38μm         ASTM D7647         >4         2         0         1           Particles >71μm         ASTM D7647         >3         0         0         0           Oil Cleanliness         ISO 4406 (c)         >/17/13         Δ 22/20/16         18/16/12         20/18/14           FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >21µm		ASTM D7647	>20	<u> </u>	6	22
Particles >71μm         ASTM D7647         >3         0         0         0           Oil Cleanliness         ISO 4406 (c)         >/17/13         ▲ 22/20/16         18/16/12         ■ 20/18/14           FLUID DEGRADATION         method         limit/base         current         history1         history2	·		ASTM D7647	>4		0	1
Oil Cleanliness         ISO 4406 (c)         >/17/13         ▲ 22/20/16         18/16/12         ● 20/18/14           FLUID DEGRADATION         method         limit/base         current         history1         history2				>3	0	0	0
	·						
Acid Number (AN) mg KOH/g ASTM D8045 1.0 0.42 0.36 0.39	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	0.42	0.36	



## **OIL ANALYSIS REPORT**







Certificate 12367

Laboratory Sample No.

Lab Number

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 06146614

: KCPA016894 Unique Number : 10976692

Received Tested

Diagnosed Test Package : IND 2 ( Additional Tests: KF, PrtCount )

: 11 Apr 2024 : 12 Apr 2024

: 16 Apr 2024 - Angela Borella

OAK CREEK, WI US 53154 Contact: Service Manager ssswosin@amazon.com T:

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)

F:

**AMAZON** 

9700 S 13TH ST