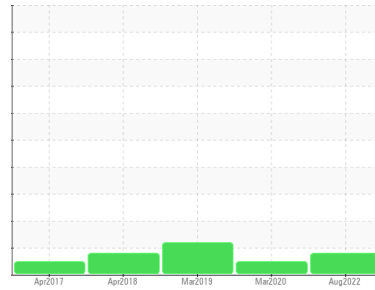


# PROBLEM SUMMARY

Sample Rating Trend



ISO



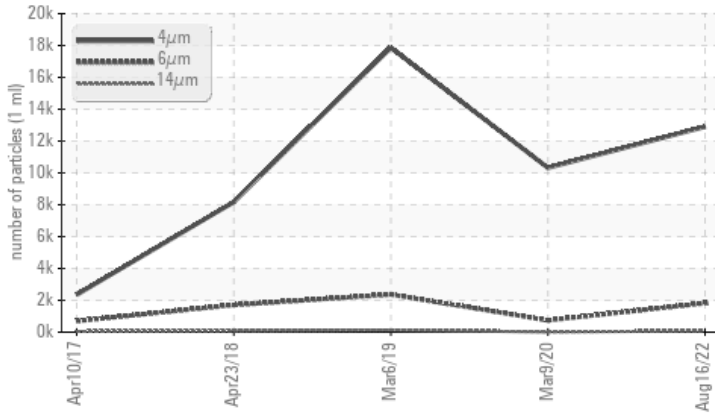
Machine Id  
**KAESER CS 91 1439687 (S/N 7600505)**

Component  
**Compressor**

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

## COMPONENT CONDITION SUMMARY

### ▲ Particle Trend



## RECOMMENDATION

No corrective action is recommended at this time. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

## PROBLEMATIC TEST RESULTS

Sample Status		ATTENTION	NORMAL	ATTENTION
Particles >6µm	ASTM D7647 >1300	▲ 1817	737	▲ 2363
Oil Cleanliness	ISO 4406 (c) >--/17/13	▲ 21/18/13	17/11	▲ 18/14

Customer Id: MANMANKCP  
Sample No.: KCP48227  
Lab Number: 05622469  
Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:  
Don Baldrige +1  
[don.b505@comcast.net](mailto:don.b505@comcast.net)

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

## RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	---	---	?	Oil and filter change at the time of sampling has been noted.
Change Filter	---	---	?	Oil and filter change at the time of sampling has been noted.

## HISTORICAL DIAGNOSIS

### 09 Mar 2020 Diag: Don Baldrige

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



### 06 Mar 2019 Diag: Jonathan Hester

ISO



No corrective action is recommended at this time. Oil and 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.

view report



### 23 Apr 2018 Diag: Angela Borella

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.

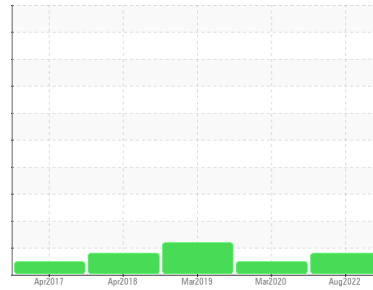
view report



Machine Id  
**KAESER CS 91 1439687 (S/N 7600505)**

Component  
**Compressor**

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



## DIAGNOSIS

### ▲ Recommendation

No corrective action is recommended at this time. 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 silt (particulates < 14 microns in size) 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	history 1	history 2
Sample Number			<b>KCP48227</b>	KCP24481	KCP00441
Sample Date			<b>16 Aug 2022</b>	09 Mar 2020	06 Mar 2019
Machine Age	hrs		<b>52322</b>	47491	45333
Oil Age	hrs		<b>3000</b>	2100	3000
Oil Changed			<b>Changed</b>	Changed	Changed
Sample Status			<b>ATTENTION</b>	NORMAL	ATTENTION

## WEAR METALS

	method	limit/base	current	history 1	history 2
Iron	ppm ASTM D5185m	>50	<b>&lt;1</b>	2	1
Chromium	ppm ASTM D5185m	>10	<b>0</b>	<1	0
Nickel	ppm ASTM D5185m	>3	<b>&lt;1</b>	<1	0
Titanium	ppm ASTM D5185m	>3	<b>0</b>	0	0
Silver	ppm ASTM D5185m	>2	<b>0</b>	<1	0
Aluminum	ppm ASTM D5185m	>10	<b>0</b>	<1	<1
Lead	ppm ASTM D5185m	>10	<b>0</b>	<1	0
Copper	ppm ASTM D5185m	>50	<b>4</b>	2	3
Tin	ppm ASTM D5185m	>10	<b>&lt;1</b>	0	0
Antimony	ppm ASTM D5185m		<b>---</b>	0	0
Vanadium	ppm ASTM D5185m		<b>0</b>	0	0
Cadmium	ppm ASTM D5185m		<b>0</b>	0	0

## ADDITIVES

	method	limit/base	current	history 1	history 2
Boron	ppm ASTM D5185m	0	<b>0</b>	0	0
Barium	ppm ASTM D5185m	90	<b>0</b>	<1	3
Molybdenum	ppm ASTM D5185m	0	<b>0</b>	0	0
Manganese	ppm ASTM D5185m		<b>0</b>	<1	<1
Magnesium	ppm ASTM D5185m	100	<b>7</b>	28	3
Calcium	ppm ASTM D5185m	0	<b>0</b>	<1	0
Phosphorus	ppm ASTM D5185m	0	<b>0</b>	2	0
Zinc	ppm ASTM D5185m	0	<b>6</b>	17	20
Sulfur	ppm ASTM D5185m	23500	<b>19795</b>	17116	17997

## CONTAMINANTS

	method	limit/base	current	history 1	history 2
Silicon	ppm ASTM D5185m	>25	<b>&lt;1</b>	<1	<1
Sodium	ppm ASTM D5185m		<b>4</b>	10	2
Potassium	ppm ASTM D5185m	>20	<b>0</b>	2	<1
Water	% ASTM D6304	>0.05	<b>0.009</b>	0.009	0.004
ppm Water	ppm ASTM D6304	>500	<b>95.6</b>	98.6	40

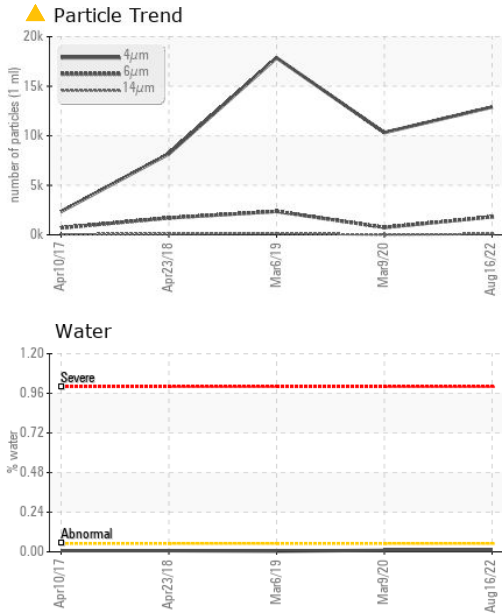
## FLUID CLEANLINESS

	method	limit/base	current	history 1	history 2
Particles >4µm	ASTM D7647		<b>12900</b>	10319	17866
Particles >6µm	ASTM D7647	>1300	<b>▲ 1817</b>	737	▲ 2363
Particles >14µm	ASTM D7647	>80	<b>78</b>	11	▲ 131
Particles >21µm	ASTM D7647	>20	<b>15</b>	5	▲ 33
Particles >38µm	ASTM D7647	>4	<b>2</b>	0	0
Particles >71µm	ASTM D7647	>3	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>--/17/13	<b>▲ 21/18/13</b>	17/11	▲ 18/14

## FLUID DEGRADATION

	method	limit/base	current	history 1	history 2
Acid Number (AN)	mg KOH/g ASTM D8045	1.0	<b>0.46</b>	0.437	0.516

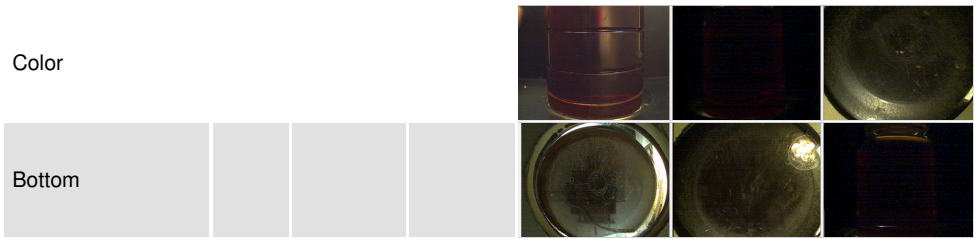
# OIL ANALYSIS REPORT



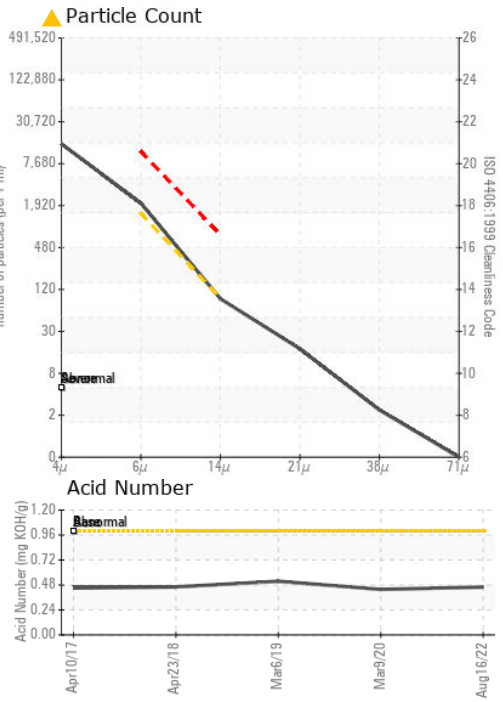
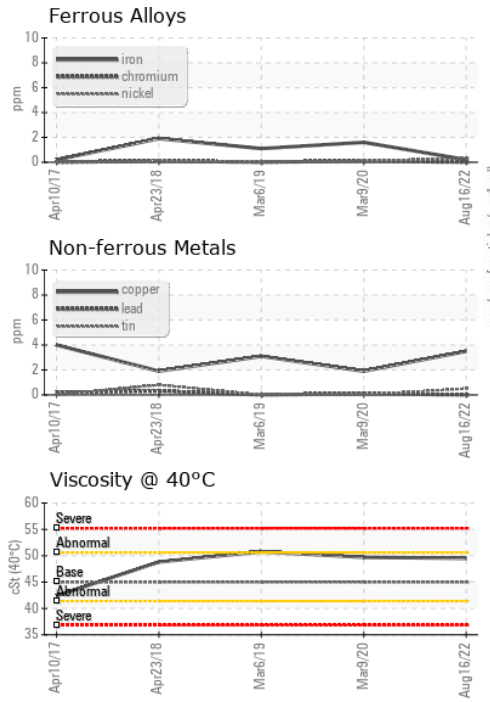
VISUAL	method	limit/base	current	history 1	history 2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.05	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history 1	history 2
Visc @ 40°C	cSt	ASTM D445	45	49.5	49.7

SAMPLE IMAGES	method	limit/base	current	history 1	history 2
---------------	--------	------------	---------	-----------	-----------



## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : KCP48227 **Received** : 19 Aug 2022  
**Lab Number** : 05622469 **Diagnosed** : 23 Aug 2022  
**Unique Number** : 10101976 **Diagnostician** : Don Baldrige  
**Test Package** : IND 2 ( Additional Tests: KF, PrtCount )

**MANITOWOC FOODSERVICE**  
 2110 S 26TH ST  
 MANITOWOC, WI  
 USA 54220  
 Contact: SERVICE MANAGER

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)