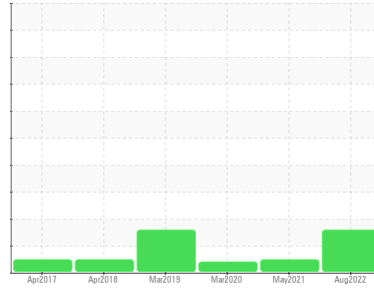


PROBLEM SUMMARY

Sample Rating Trend



VISCOSITY



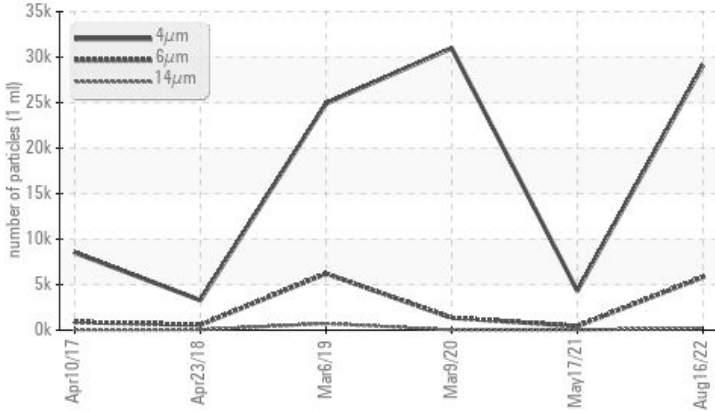
Machine Id
KAESER CS 91 1439709 (S/N 7600541)

Component
Compressor

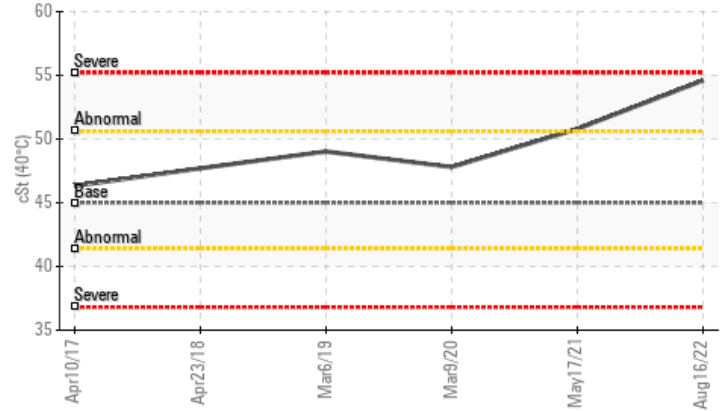
Fluid
KAESER SIGMA (OEM) M-460 (--- GAL)

COMPONENT CONDITION SUMMARY

▲ Particle Trend



▲ Viscosity @ 40°C



RECOMMENDATION

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

PROBLEMATIC TEST RESULTS

Sample Status			ABNORMAL	NORMAL	ATTENTION	
Particles >6µm	ASTM D7647	>1300	▲ 5840	441	▲ 1354	
Particles >14µm	ASTM D7647	>80	▲ 200	24	20	
Oil Cleanliness	ISO 4406 (c)	>--/17/13	▲ 22/20/15	16/12	▲ 18/11	
Visc @ 40°C	cSt	ASTM D445	45	▲ 54.6	50.8	47.8

Customer Id: MANMANKCP
Sample No.: KCP49932
Lab Number: 05622461
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

To change component or sample information:
Customer Service +1 1-800-237-1369
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

17 May 2021 Diag: Angela Borella

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 is acceptable. There is no indication of any contamination in the component. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



09 Mar 2020 Diag: Don Baldrige

ISO



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 silt (particulates < 14 microns in size) present 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: Doug Bogart

ISO



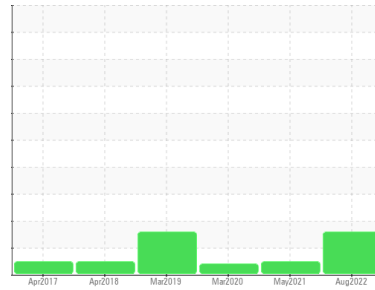
Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor. All component wear rates are normal. There is a high amount of particulates present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY



Machine Id
KAESER CS 91 1439709 (S/N 7600541)

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

DIAGNOSIS

▲ Recommendation

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. 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.

▲ Fluid Condition

The oil viscosity is higher than normal. The AN level is acceptable for this fluid.

SAMPLE INFORMATION

	method	limit/base	current	history 1	history 2
Sample Number			KCP49932	KCP33525	KCP24478
Sample Date			16 Aug 2022	17 May 2021	09 Mar 2020
Machine Age	hrs		57118	54147	51279
Oil Age	hrs		3000	3000	3000
Oil Changed			Changed	Changed	Changed
Sample Status			ABNORMAL	NORMAL	ATTENTION

WEAR METALS

	method	limit/base	current	history 1	history 2
Iron	ppm	ASTM D5185m >50	<1	2	4
Chromium	ppm	ASTM D5185m >10	0	<1	<1
Nickel	ppm	ASTM D5185m >3	<1	0	<1
Titanium	ppm	ASTM D5185m >3	0	0	0
Silver	ppm	ASTM D5185m >2	0	0	<1
Aluminum	ppm	ASTM D5185m >10	0	0	1
Lead	ppm	ASTM D5185m >10	0	<1	<1
Copper	ppm	ASTM D5185m >50	8	4	2
Tin	ppm	ASTM D5185m >10	<1	0	0
Antimony	ppm	ASTM D5185m	---	0	0
Vanadium	ppm	ASTM D5185m	0	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history 1	history 2
Boron	ppm	ASTM D5185m 0	<1	<1	0
Barium	ppm	ASTM D5185m 90	0	<1	4
Molybdenum	ppm	ASTM D5185m 0	0	0	0
Manganese	ppm	ASTM D5185m	0	<1	<1
Magnesium	ppm	ASTM D5185m 100	5	36	51
Calcium	ppm	ASTM D5185m 0	0	<1	1
Phosphorus	ppm	ASTM D5185m 0	0	2	2
Zinc	ppm	ASTM D5185m 0	13	26	52
Sulfur	ppm	ASTM D5185m 23500	19846	17304	16610

CONTAMINANTS

	method	limit/base	current	history 1	history 2
Silicon	ppm	ASTM D5185m >25	<1	<1	0
Sodium	ppm	ASTM D5185m	2	17	19
Potassium	ppm	ASTM D5185m >20	0	4	1
Water	%	ASTM D6304 >0.05	0.011	0.014	0.012
ppm Water	ppm	ASTM D6304 >500	115.4	146.0	129.6

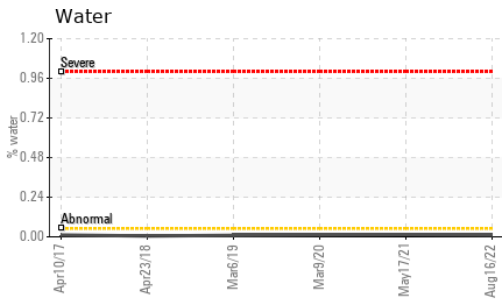
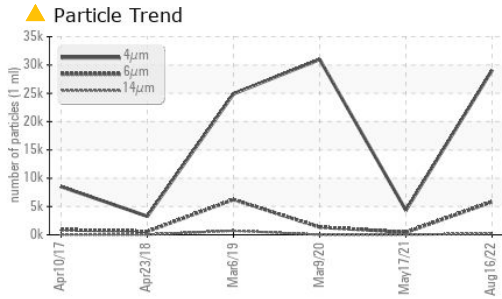
FLUID CLEANLINESS

	method	limit/base	current	history 1	history 2
Particles >4µm	ASTM D7647		29107	4328	30986
Particles >6µm	ASTM D7647	>1300	▲ 5840	441	▲ 1354
Particles >14µm	ASTM D7647	>80	▲ 200	24	20
Particles >21µm	ASTM D7647	>20	19	6	6
Particles >38µm	ASTM D7647	>4	0	0	0
Particles >71µm	ASTM D7647	>3	0	0	0
Oil Cleanliness	ISO 4406 (c)	>--/17/13	▲ 22/20/15	16/12	▲ 18/11

FLUID DEGRADATION

	method	limit/base	current	history 1	history 2
Acid Number (AN)	mg KOH/g	ASTM D8045 1.0	0.50	0.523	0.404

OIL ANALYSIS REPORT



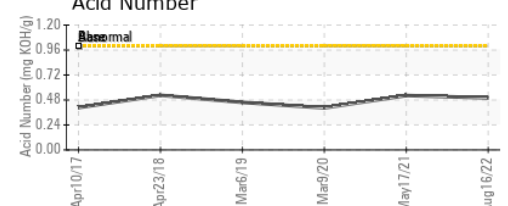
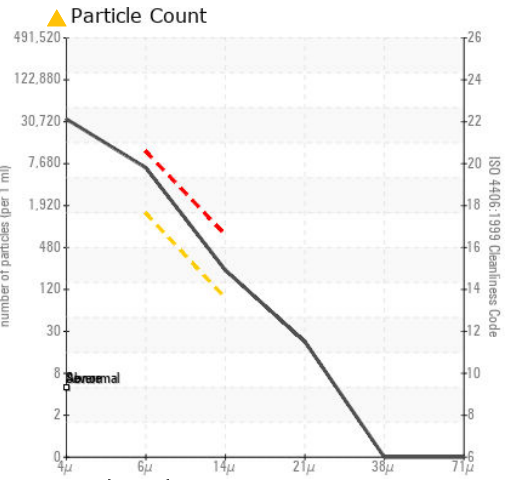
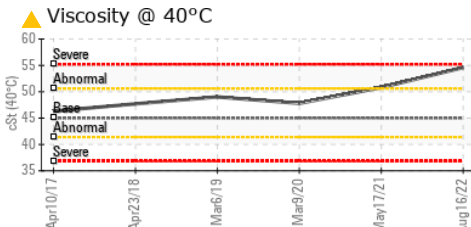
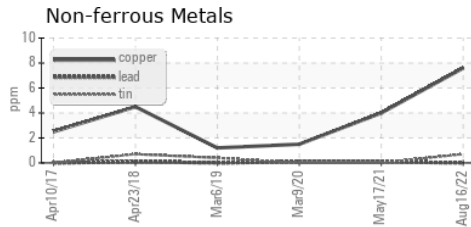
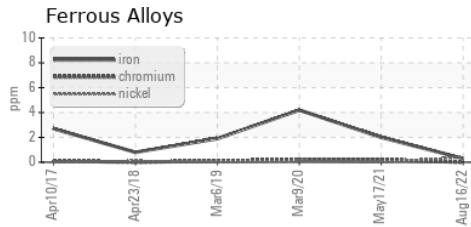
VISUAL	method	limit/base	current	history 1	history 2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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	54.6	50.8	47.8

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



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KCP49932 **Received** : 19 Aug 2022
Lab Number : 05622461 **Diagnosed** : 23 Aug 2022
Unique Number : 10101968 **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)