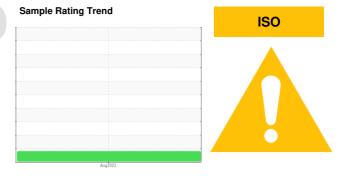


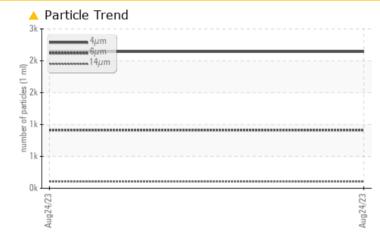
# **PROBLEM SUMMARY**



## Machine Id 8293431 (S/N 1352) Component

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

## COMPONENT CONDITION SUMMARY



## RECOMMENDATION

The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

PROBLEMATIC TES	T RESULTS			
Sample Status			ATTENTION	 
Particles >14µm	ASTM D7647	>80	<u> </u>	 
Oil Cleanliness	ISO 4406 (c)	>/17/13	<b>18/17/14</b>	 

Customer Id: REAWAL Sample No.: KC121456 Lab Number: 05936737 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Angela Borella +1 800-237-1369 angela.borella@wearcheckusa.com

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS



## **OIL ANALYSIS REPORT**



ISO

8293431 (S/N 1352)

Component Compressor

Machine Id

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

## DIAGNOSIS

#### Recommendation

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 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 Date         Client Info         24 Aug 2023             Machine Age         hrs         Client Info         277             Oil Age         hrs         Client Info         0             Sample Status         Image         hrs         Client Info         N/A             WEAR METALS         method         Imit/base         current         history1            Iron         ppm         ASTM D5185m         >50         <1             Titrainum         ppm         ASTM D5185m         >30         0             Silver         ppm         ASTM D5185m         >32         0             Cadmium         ppm         ASTM D5185m         >22         0             Lead         ppm         ASTM D5185m         >10         0             Cadmium         ppm         ASTM D5185m         >10         0             Machinum         ppm         ASTM D5185m         0         0       <					Aug2023		
Sample Date         Client Info         24 Aug 2023             Machine Age         hrs         Client Info         0             Oil Age         hrs         Client Info         0             Sample Status         Client Info         N/A             WEAR METALS         method         limi/base         current         history1         history2           Iron         ppm         ASTM 05185m         >50         <1             Nickel         ppm         ASTM 05185m         >3         0             Auminum         ppm         ASTM 05185m         >3         0             Lead         ppm         ASTM 05185m         >10         0             Vanadium         ppm         ASTM 05185m         >10         0             ADDTIVES         method         limi/base         current         history1         history2           Vanadium         ppm         ASTM 05185m         0         0             ADDTIVES	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         277             Oil Age         hrs         Client Info         0             Sample Status         Client Info         N/A             WEAR METALS         method         Imit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         <1	Sample Number		Client Info		KC121456		
Oil Age         hrs         Client Info         N/A             Sample Status         Client Info         N/A             WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         <1	Sample Date		Client Info		24 Aug 2023		
Oil Changed         Client Info         N/A             Sample Status         method         limit/base         current         history1         history2           Iron         ppm         ASTN D5185m         >50         <1	Machine Age	hrs	Client Info		277		
Sample Status         method         Imil/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         <1	Oil Age	hrs	Client Info		0		
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         <1	Oil Changed		Client Info		N/A		
Iron       ppm       ASTM D5185m       >50       <1           Chromium       ppm       ASTM D5185m       >3       0           Nickel       ppm       ASTM D5185m       >3       0           Silver       ppm       ASTM D5185m       >2       0           Aluminum       ppm       ASTM D5185m       >10       <1	Sample Status				ATTENTION		
Promission         ASTM D5185m         >10         0             Nickel         ppm         ASTM D5185m         >3         0             Silver         ppm         ASTM D5185m         >2         0             Silver         ppm         ASTM D5185m         >2         0             Aluminum         ppm         ASTM D5185m         >10         0             Lead         ppm         ASTM D5185m         >10         0             Copper         ppm         ASTM D5185m         >10         0             Adminum         ppm         ASTM D5185m         0         0	WEAR METALS		method	limit/base	current	history1	history2
Nickel         ppm         ASTM D5185m         >3         0             Titanium         ppm         ASTM D5185m         >3         0             Silver         ppm         ASTM D5185m         >2         0             Aluminum         ppm         ASTM D5185m         >10         0             Copper         ppm         ASTM D5185m         >50         1             Cadmium         ppm         ASTM D5185m         >50         1             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0             Aggnesium         ppm         ASTM D5185m         0         0             Maganese         ppm         ASTM D5185m         0         0             Magnesium         ppm         ASTM D5185m         100         76             ContAMINANTS         method         limit/base         current </td <td>Iron</td> <td>ppm</td> <td>ASTM D5185m</td> <td>&gt;50</td> <td>&lt;1</td> <td></td> <td></td>	Iron	ppm	ASTM D5185m	>50	<1		
Titanium       ppm       ASTM D5185m       >3       0           Silver       ppm       ASTM D5185m       >2       0           Aluminum       ppm       ASTM D5185m       >10       0           Copper       ppm       ASTM D5185m       >10       0           Copper       ppm       ASTM D5185m       >10       0           Vanadium       ppm       ASTM D5185m       0       0           ADDITIVES       method       limit/base       current       history1       history2         Boron       ppm       ASTM D5185m       0       0           Magnaese       ppm       ASTM D5185m       0       0           Calcium       ppm       ASTM D5185m       0       1           Magnaesium       ppm       ASTM D5185m       0       4           Calcium       ppm       ASTM D5185m       0       4           Silicon       ppm       ASTM D5185m       >20	Chromium	ppm	ASTM D5185m	>10	0		
Silver       ppm       ASTM D5185m       >2       0           Aluminum       ppm       ASTM D5185m       >10       <1	Nickel	ppm	ASTM D5185m	>3	0		
Aluminum         ppm         ASTM D5185m         >10         <1             Lead         ppm         ASTM D5185m         >10         0             Copper         ppm         ASTM D5185m         >50         1             Vanadium         ppm         ASTM D5185m         >10         0             Cadmium         ppm         ASTM D5185m         0         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0             Maganese         ppm         ASTM D5185m         0         0             Maganese         ppm         ASTM D5185m         0         1             Calcium         ppm         ASTM D5185m         0         4             Zinc         ppm         ASTM D5185m         0         4             Solium         ppm         ASTM D5185m         2.5 <td>Titanium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>&gt;3</td> <td>0</td> <td></td> <td></td>	Titanium	ppm	ASTM D5185m	>3	0		
Lead         ppm         ASTM D5185m         >10         0             Copper         ppm         ASTM D5185m         >50         1             Tin         ppm         ASTM D5185m         >10         0             Vanadium         ppm         ASTM D5185m         0         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0             Molybdenum         ppm         ASTM D5185m         0         0             Magnesium         ppm         ASTM D5185m         0         76             Contrakinwa         ppm         ASTM D5185m         0         4             Silicon         ppm         ASTM D5185m         0         4             Sodium         ppm         ASTM D5185m         25         <1	Silver	ppm	ASTM D5185m	>2	0		
Copper         ppm         ASTM D5185m         >50         1             Tin         ppm         ASTM D5185m         >10         0             Vanadium         ppm         ASTM D5185m         0              ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0             Molybdenum         ppm         ASTM D5185m         0         0             Magaese         ppm         ASTM D5185m         0         0             Magesium         ppm         ASTM D5185m         100         76             Calcium         ppm         ASTM D5185m         0         4             Silicon         ppm         ASTM D5185m         0         4             Sodium         ppm         ASTM D5185m         >20         <1	Aluminum	ppm	ASTM D5185m	>10	<1		
Tin       ppm       ASTM D5185m       >10       0           Vanadium       ppm       ASTM D5185m       0           ADDITIVES       method       limit/base       current       history1       history2         Boron       ppm       ASTM D5185m       0       0           ADDITIVES       method       limit/base       current       history1       history2         Boron       ppm       ASTM D5185m       0       0           Manganese       ppm       ASTM D5185m       0       0           Magnesium       ppm       ASTM D5185m       0       1           Calcium       ppm       ASTM D5185m       0       4           Zinc       ppm       ASTM D5185m       0       4           Solicon       ppm       ASTM D5185m       0       0           Solicon       ppm       ASTM D5185m       >20       <1           Solicon       ppm       ASTM D5185m       >20       <1	Lead	ppm	ASTM D5185m	>10	0		
Vanadium         ppm         ASTM D5185m         0             Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0             Barium         ppm         ASTM D5185m         0         0             Magnese         ppm         ASTM D5185m         0         0             Magnese         ppm         ASTM D5185m         0         0             Calcium         ppm         ASTM D5185m         0         1             Calcium         ppm         ASTM D5185m         0         4             Zinc         ppm         ASTM D5185m         0         0             Solicon         ppm         ASTM D5185m         0         0             Solicon         ppm         ASTM D5185m         >20         <1	Copper	ppm	ASTM D5185m	>50	1		
Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0             Barium         ppm         ASTM D5185m         0         0             Molybdenum         ppm         ASTM D5185m         0         0             Manganese         ppm         ASTM D5185m         100         76             Calcium         ppm         ASTM D5185m         0         4             ContAMINANTS         ppm         ASTM D5185m         0         4             Solium         ppm         ASTM D5185m         0         0             Solium         ppm         ASTM D5185m         >25         <1             Solium         ppm         ASTM D5185m         >20         <1             Solium         ppm         ASTM D5185m         >20         <11	Tin	ppm	ASTM D5185m	>10	0		
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0             Barium         ppm         ASTM D5185m         0         0             Molybdenum         ppm         ASTM D5185m         0         0             Magnese         ppm         ASTM D5185m         0         0         1            Magnesium         ppm         ASTM D5185m         100         76             Calcium         ppm         ASTM D5185m         0         4             Phosphorus         ppm         ASTM D5185m         0         4             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         0         0             Sodium         ppm         ASTM D5185m         210              Sodium         ppm         ASTM D6185m         11	Vanadium	ppm	ASTM D5185m		0		
Boron       ppm       ASTM D5185m       0       0           Barium       ppm       ASTM D5185m       90       2           Molybdenum       ppm       ASTM D5185m       0       0           Manganese       ppm       ASTM D5185m       100       76           Magnesium       ppm       ASTM D5185m       0       1           Calcium       ppm       ASTM D5185m       0       4           Phosphorus       ppm       ASTM D5185m       0       4           Zinc       ppm       ASTM D5185m       0       0            CONTAMINANTS       method       limit/base       current       history1       history2         Silicon       ppm       ASTM D5185m       >20       <1	Cadmium	ppm	ASTM D5185m		0		
Barium         ppm         ASTM D5185m         90         2             Molybdenum         ppm         ASTM D5185m         0         0             Manganese         ppm         ASTM D5185m         0         1             Magnesium         ppm         ASTM D5185m         0         1             Calcium         ppm         ASTM D5185m         0         4             Calcium         ppm         ASTM D5185m         0         4             Calcium         ppm         ASTM D5185m         0         4             Zinc         ppm         ASTM D5185m         0         0             Solium         ppm         ASTM D5185m         >25         <1             Solium         ppm         ASTM D5185m         >20         <1             Solium         ppm         ASTM D5185m         >20         <1             Potassium         ppm         ASTM D5185m <td< th=""><th>ADDITIVES</th><th></th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></td<>	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         0         0             Manganese         ppm         ASTM D5185m         0         76             Calcium         ppm         ASTM D5185m         0         1             Calcium         ppm         ASTM D5185m         0         4             Phosphorus         ppm         ASTM D5185m         0         4             Zinc         ppm         ASTM D5185m         0         0             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         <1	Boron	ppm	ASTM D5185m	0	0		
Manganese       ppm       ASTM D5185m       <1	Barium	ppm	ASTM D5185m	90	2		
Magnesium       ppm       ASTM D5185m       100       76           Calcium       ppm       ASTM D5185m       0       1           Phosphorus       ppm       ASTM D5185m       0       4           Zinc       ppm       ASTM D5185m       0       0           CONTAMINANTS       method       limit/base       current       history1       history2         Silicon       ppm       ASTM D5185m       >25       <1	Molybdenum	ppm	ASTM D5185m	0	0		
Calcium       pm       ASTM D5185m       0       1           Phosphorus       ppm       ASTM D5185m       0       4           Zinc       ppm       ASTM D5185m       0       0       0           CONTAMINANTS       method       limit/base       current       history1       history2         Silicon       ppm       ASTM D5185m       >25       <1	Manganese	ppm	ASTM D5185m		<1		
Phosphorus ZincppmASTM D5185m04ZincppmASTM D5185m00CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25<1	Magnesium	ppm	ASTM D5185m	100	76		
ZincppmASTM D5185m00CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25<1	Calcium	ppm	ASTM D5185m	0	1		
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25<1	Phosphorus	ppm	ASTM D5185m	0	4		
Silicon       ppm       ASTM D5185m       >25       <1	Zinc	ppm	ASTM D5185m	0	0		
Sodium         ppm         ASTM D5185m         11             Potassium         ppm         ASTM D5185m         >20         <1             Water         %         ASTM D6304         >0.05         0.020             ppm Water         ppm         ASTM D6304         >500         205.5             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         2143              Particles >6µm         ASTM D7647         >1300         913             Particles >1µm         ASTM D7647         >80         105             Particles >21µm         ASTM D7647         >20         22             Particles >38µm         ASTM D7647         >3         0             Oil Cleanliness         ISO 4406 (c)         >/17/13         18/17/14             FLUID DEGRADATION         method         limit/base         current         history1         history2	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         <1             Water         %         ASTM D6304         >0.05         0.020             ppm         ASTM D6304         >500         205.5             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         2143             Particles >6µm         ASTM D7647         >1300         913             Particles >14µm         ASTM D7647         >20         22             Particles >14µm         ASTM D7647         >20         22             Particles >21µm         ASTM D7647         >20         22             Particles >38µm         ASTM D7647         >3         0             Oil Cleanliness         ISO 4406 (c)         >/17/13         18/17/14             FLUID DEGRADATION         method         limit/base         current         history1         history2 <td>Silicon</td> <td>ppm</td> <td>ASTM D5185m</td> <td>&gt;25</td> <td>&lt;1</td> <td></td> <td></td>	Silicon	ppm	ASTM D5185m	>25	<1		
Water       %       ASTM D6304       >0.05       0.020           ppm Water       ppm       ASTM D6304       >500       205.5           FLUID CLEANLINESS       method       limit/base       current       history1       history2         Particles >4µm       ASTM D7647       2143           Particles >6µm       ASTM D7647       >1300       913           Particles >6µm       ASTM D7647       >80       105           Particles >14µm       ASTM D7647       >20       22           Particles >21µm       ASTM D7647       >4       1           Particles >38µm       ASTM D7647       >3       0           Particles >71µm       ASTM D7647       >3       0           Oil Cleanliness       ISO 4406 (c)       >/17/13       18/17/14           FLUID DEGRADATION       method       limit/base       current       history1       history2	Sodium	ppm	ASTM D5185m		11		
ppm Water         ppm         ASTM D6304         >500         205.5             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         2143             Particles >6µm         ASTM D7647         >1300         913             Particles >6µm         ASTM D7647         >80         105             Particles >14µm         ASTM D7647         >20         22             Particles >21µm         ASTM D7647         >4         1             Particles >38µm         ASTM D7647         >4         1             Particles >71µm         ASTM D7647         >3         0             Oil Cleanliness         ISO 4406 (c)        /17/13         18/17/14             FLUID DEGRADATION         method         limit/base         current         history1         history2	Potassium	ppm	ASTM D5185m	>20	<1		
FLUID CLEANLINESS       method       limit/base       current       history1       history2         Particles >4µm       ASTM D7647       2143           Particles >6µm       ASTM D7647       >1300       913           Particles >6µm       ASTM D7647       >80       105           Particles >14µm       ASTM D7647       >20       22           Particles >21µm       ASTM D7647       >20       22           Particles >21µm       ASTM D7647       >4       1           Particles >38µm       ASTM D7647       >3       0           Particles >71µm       ASTM D7647       >3       0           Oil Cleanliness       ISO 4406 (c)       >/17/13       18/17/14           FLUID DEGRADATION       method       limit/base       current       history1       history2	Water	%	ASTM D6304	>0.05	0.020		
Particles >4µm       ASTM D7647       2143           Particles >6µm       ASTM D7647       >1300       913           Particles >14µm       ASTM D7647       >80       105           Particles >14µm       ASTM D7647       >20       22           Particles >21µm       ASTM D7647       >20       22           Particles >38µm       ASTM D7647       >4       1           Particles >38µm       ASTM D7647       >3       0           Oil Cleanliness       ISO 4406 (c)       >/17/13       18/17/14           FLUID DEGRADATION       method       limit/base       current       history1       history2	ppm Water	ppm	ASTM D6304	>500	205.5		
Particles >6µm       ASTM D7647       >1300       913           Particles >14µm       ASTM D7647       >80       ▲ 105           Particles >21µm       ASTM D7647       >20       22           Particles >21µm       ASTM D7647       >20       22           Particles >38µm       ASTM D7647       >4       1           Particles >71µm       ASTM D7647       >3       0           Oil Cleanliness       ISO 4406 (c)       >/17/13       ▲ 18/17/14           FLUID DEGRADATION       method       limit/base       current       history1       history2	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >14μm       ASTM D7647       >80       ▲ 105           Particles >21μm       ASTM D7647       >20       22           Particles >38μm       ASTM D7647       >4       1           Particles >38μm       ASTM D7647       >4       1           Particles >71μm       ASTM D7647       >3       0           Oil Cleanliness       ISO 4406 (c)       >/17/13       ▲ 18/17/14           FLUID DEGRADATION       method       limit/base       current       history1       history2	Particles >4µm						
Particles >21μm         ASTM D7647         >20         22             Particles >38μm         ASTM D7647         >4         1             Particles >37μm         ASTM D7647         >3         0             Oil Cleanliness         ISO 4406 (c)         >/17/13         18/17/14             FLUID DEGRADATION         method         limit/base         current         history1         history2			ASTM D7647	>1300	913		
Particles >38μm         ASTM D7647         >4         1             Particles >71μm         ASTM D7647         >3         0             Oil Cleanliness         ISO 4406 (c)         >/17/13 <b>18/17/14</b> FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >14µm		ASTM D7647	>80	<u> </u>		
Particles >71μm         ASTM D7647         >3         0             Oil Cleanliness         ISO 4406 (c)         >/17/13         ▲ 18/17/14             FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >21µm		ASTM D7647	>20	22		
Oil Cleanliness       ISO 4406 (c) >/17/13 ▲ 18/17/14          FLUID DEGRADATION       method       limit/base       current       history1       history2	Particles >38µm		ASTM D7647	>4	1		
FLUID DEGRADATION method limit/base current history1 history2	Particles >71µm		ASTM D7647	>3	0		
	Oil Cleanliness		ISO 4406 (c)	>/17/13	<b>18/17/14</b>		
Acid Number (AN) mg KOH/g ASTM D8045 1.0 0.37	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	0.37		



Pio 0.2

0.00

1.20

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<sub>늘</sub>0.72

a<sup>2</sup>0.48 0.24

60

55

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35

Water

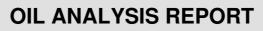
Abnorma 0.00 /g24/

Abnorma

Se

Viscosity @ 40°C

#### Built for a lifetime



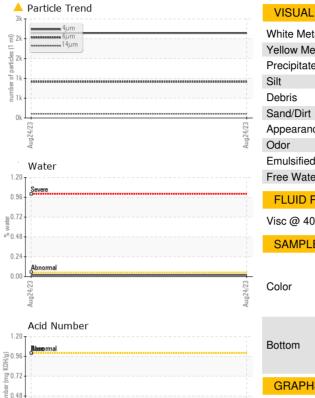
method

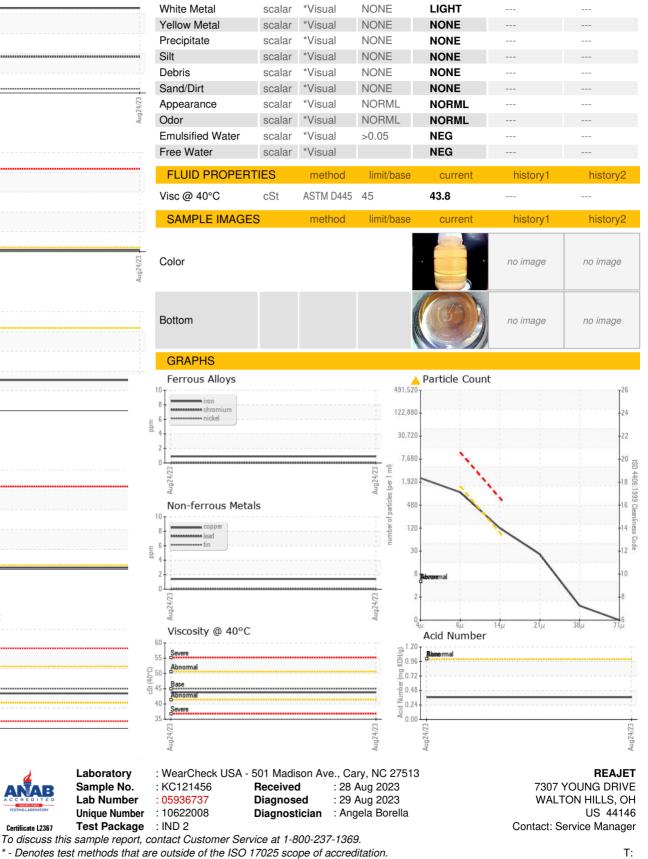
limit/base

current

history1

history2





Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Certificate L2367

Laboratory