

### **OIL ANALYSIS REPORT**

#### Sample Rating Trend



# KAESER 7846162

Compressor Fluid KAESER SIGMA (OEM) S-460 (--- QTS)

#### 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.

#### Wear

All component wear rates are normal.

#### Contamination

The amount and size of particulates present in the system are acceptable.

#### Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION     method     Initibase     current     history1     history2       Sample Number     Client Info     23 Aug 2023     01 Nov 2021        Machine Age     hrs     Client Info     00352     1771        Oil Age     hrs     Client Info     0     1771        Oil Age     hrs     Client Info     0     1771        Oil Changed     Client Info     0     1771        Sample Status     Imit/base     current     NetRMAL     ABNORMAL        VEAR METALS     method     Imit/base     current     Nickel         Tran     ppm     ASTM 05155m     >3     0     0        Silver     ppm     ASTM 05155m     >10     0         Copper     ppm     ASTM 05155m     >10     0         Auminum     ppm     ASTM 05155m     10     0         Vanadi			-	Nov2021	Aug2023		
Sample Date     Client Info     23 Aug 2023     01 Nov 2021        Machine Age     hrs     Client Info     10352     1771        Oil Age     hrs     Client Info     0     1771        Sample Status     Client Info     N/A     Changed        WEAR METALS     method     Imit/base     current     history1     history2       Iron     ppm     ASTM 05165m     >10     0     0        Nickel     ppm     ASTM 05165m     >3     0     0        Silver     ppm     ASTM 05165m     >10     0     0        Copper     ppm     ASTM 05165m     >10     0     0        Auminum     ppm     ASTM 05165m     >10     0         Autinum     ppm     ASTM 05165m     >0     0         Autinum     ppm     ASTM 05165m     0     0         Autinum </th <th>SAMPLE INFORM</th> <th>MATION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age     hrs     Client Info     10352     1771        Oil Age     hrs     Client Info     N/A     Changed        Sample Status     Imit base     normal     ABNORMAL        WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     0     0        Nickel     ppm     ASTM D5185m     >3     0     0        Sliver     ppm     ASTM D5185m     >3     0     0        Copper     ppm     ASTM D5185m     >10     0     0        Vanadium     ppm     ASTM D5185m     >10     0      0        Antimony     ppm     ASTM D5185m     0     0      0	Sample Number		Client Info		KC05936703	KC89839	
Oil Age     hrs     Client Info     0     1771        Oil Changed     Client Info     N/A     Changed        WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     0     0        Nickel     ppm     ASTM D5185m     >3     0     0        Silver     ppm     ASTM D5185m     >3     0     0        Aluminum     ppm     ASTM D5185m     >10     0     0        Aluminum     ppm     ASTM D5185m     >10     0     0        Aluminum     ppm     ASTM D5185m     >10     0      0        Aluminum     ppm     ASTM D5185m     >10     0      0        Astm D5185m     0     0     0      0        Astm D5185m     0     0     0      0	Sample Date		Client Info		23 Aug 2023	01 Nov 2021	
Oil Changed Sample Status     Client Info     N/A     Changed ABNORMAL     ···· ABNORMAL     Changed ABNORMAL     ···· ABNORMAL       WEAR METALS     method     Imit/base     current     history1     history2       Iron     ppm     ASTM D5185n     >50     0     0        Nickel     ppm     ASTM D5185n     >3     0     0        Silver     ppm     ASTM D5185n     >3     0     0        Aluminum     ppm     ASTM D5185n     >10     <1	Machine Age	hrs	Client Info		10352	1771	
Sample Status     method     Imit/base     current     Instory1     Instory2       Iron     ppm     ASTM D5185m     >50     0     0        Chromium     ppm     ASTM D5185m     >10     0     0        Nickel     ppm     ASTM D5185m     >3     0     0        Titranium     ppm     ASTM D5185m     >3     0     0        Sliver     ppm     ASTM D5185m     >10     <1	Oil Age	hrs	Client Info		0	1771	
WEAR METALS     method     limit/base     current     history1     history2       Kromium     ppm     ASTM D5185m     >50     0     0        Nickel     ppm     ASTM D5185m     >3     0     0        Nickel     ppm     ASTM D5185m     >3     0     0        Silver     ppm     ASTM D5185m     >2     0     0        Aduminum     ppm     ASTM D5185m     >10     0     0        Lead     ppm     ASTM D5185m     >10     0     0        Aduminum     ppm     ASTM D5185m     >10     0      0        Aduminum     ppm     ASTM D5185m     0     0     0        Vanadium     ppm     ASTM D5185m     0     0     0        Aduminum     ppm     ASTM D5185m     0     0      0        Aduminum     ppm     ASTM D5185m </td <td>Oil Changed</td> <td></td> <td>Client Info</td> <td></td> <td>N/A</td> <td>Changed</td> <td></td>	Oil Changed		Client Info		N/A	Changed	
Iron     ppm     ASTM D5185m     >50     0     0        Chromium     ppm     ASTM D5185m     >10     0     0        Nickel     ppm     ASTM D5185m     >3     0     0        Silver     ppm     ASTM D5185m     >3     0     0        Aluminum     ppm     ASTM D5185m     >10     <1	Sample Status				NORMAL	ABNORMAL	
Ppm     ASTM D5185m     >10     0     0        Nickel     ppm     ASTM D5185m     >3     0     0        Silver     ppm     ASTM D5185m     >2     0     0        Aluminum     ppm     ASTM D5185m     >2     0     0        Aluminum     ppm     ASTM D5185m     >10     0     0        Lead     ppm     ASTM D5185m     >10     0     0        Copper     ppm     ASTM D5185m     >10     0      0        Vanadium     ppm     ASTM D5185m     >10     0     0        Additum     ppm     ASTM D5185m     0     0      0        Additum     ppm     ASTM D5185m     0     0      0      0      0      0      0      0      0	WEAR METALS		method	limit/base	current	history1	history2
Nickel     ppm     ASTM D5185m     >3     0     0        Titanium     ppm     ASTM D5185m     >3     0     0        Silver     ppm     ASTM D5185m     >10     <1	Iron	ppm	ASTM D5185m	>50	0	0	
Titanium     ppm     ASTM D5185m     >3     0     0        Silver     ppm     ASTM D5185m     >2     0     0        Aluminum     ppm     ASTM D5185m     >10     0     0        Lead     ppm     ASTM D5185m     >10     0     0        Copper     ppm     ASTM D5185m     >10     0     <1	Chromium	ppm	ASTM D5185m	>10	0	0	
Silver     ppm     ASTM D5185m     >2     0     0        Aluminum     ppm     ASTM D5185m     >10     <1	Nickel	ppm	ASTM D5185m	>3	0	0	
Aluminum     ppm     ASTM D5185m     >10     <1     0        Lead     ppm     ASTM D5185m     >10     0     0        Copper     ppm     ASTM D5185m     >50     9     12        Antimony     ppm     ASTM D5185m     >10     0     <1	Titanium	ppm	ASTM D5185m	>3	0	0	
Lead     ppm     ASTM D5185m     >10     0     0        Copper     ppm     ASTM D5185m     >50     9     12        Tin     ppm     ASTM D5185m     >10     0     <1	Silver	ppm	ASTM D5185m	>2	0	0	
Copper     ppm     ASTM D5185m     >50     9     12        Tin     ppm     ASTM D5185m     >10     0     <1	Aluminum	ppm	ASTM D5185m	>10	<1	0	
Tin     ppm     ASTM D5185m     >10     0     <1        Antimony     ppm     ASTM D5185m     0     0        Vanadium     ppm     ASTM D5185m     0     0        ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0        Barium     ppm     ASTM D5185m     0     0        Malganese     ppm     ASTM D5185m     0     0        Magnesium     ppm     ASTM D5185m     0     0        Magnesium     ppm     ASTM D5185m     2     0     0        Phosphorus     ppm     ASTM D5185m     1     2         Silicon     ppm     ASTM D5185m     2     0     0        Potassium     ppm     ASTM D5185m     >20     0     11        Vater     %     ASTM D5185m <td>Lead</td> <td>ppm</td> <td>ASTM D5185m</td> <td>&gt;10</td> <td>0</td> <td>0</td> <td></td>	Lead	ppm	ASTM D5185m	>10	0	0	
Antimony     ppm     ASTM D5185m      0        Vanadium     ppm     ASTM D5185m     0     0        Cadmium     ppm     ASTM D5185m     0     0        Cadmium     ppm     ASTM D5185m     0     0        Boron     ppm     ASTM D5185m     0     0        Barium     ppm     ASTM D5185m     0     0        Maganese     ppm     ASTM D5185m     0     0        Magnesium     ppm     ASTM D5185m     2     0     0        Calcium     ppm     ASTM D5185m     2     0     0        Zinc     ppm     ASTM D5185m     2     0     0        Solicon     ppm     ASTM D5185m     2     0     0        Solicon     ppm     ASTM D5185m     2     0     0        Solicon     ppm     ASTM D5185m     >20	Copper	ppm	ASTM D5185m	>50	9	12	
Vanadium     ppm     ASTM D5185m     0     0        Cadmium     ppm     ASTM D5185m     0     0        ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0        Barium     ppm     ASTM D5185m     90     0     0        Molybdenum     ppm     ASTM D5185m     90     <1     21        Maganese     ppm     ASTM D5185m     90     <1     24        Calcium     ppm     ASTM D5185m     90     <1     24        Calcium     ppm     ASTM D5185m     2     0     0        Zinc     ppm     ASTM D5185m     2     0     0        Solicon     ppm     ASTM D5185m     2     0     0        Solicon     ppm     ASTM D5185m     >20     0     11	Tin	ppm	ASTM D5185m	>10	0	<1	
Cadmium     ppm     ASTM D5185m     0     0        ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0        Barium     ppm     ASTM D5185m     90     0     0        Magnesium     ppm     ASTM D5185m     90     <1     <1        Magnesium     ppm     ASTM D5185m     90     <1     24        Calcium     ppm     ASTM D5185m     90     <1     24        Contram     ppm     ASTM D5185m     90     <1     24        Zinc     ppm     ASTM D5185m     90     <1     24        Silicon     ppm     ASTM D5185m     20     0         Sodium     ppm     ASTM D5185m     >20     0     11        EUID CLEANLINES     method     limit/base     current     history1 <t< td=""><td>Antimony</td><td>ppm</td><td>ASTM D5185m</td><td></td><td></td><td>0</td><td></td></t<>	Antimony	ppm	ASTM D5185m			0	
ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0        Barium     ppm     ASTM D5185m     90     0     0        Molybdenum     ppm     ASTM D5185m     90     0     0        Magnesium     ppm     ASTM D5185m     90     <1	Vanadium	ppm	ASTM D5185m		0	0	
Boron     ppm     ASTM D5185m     0     0        Barium     ppm     ASTM D5185m     90     0     0        Molybdenum     ppm     ASTM D5185m     0     0        Manganese     ppm     ASTM D5185m     0     1     24        Calcium     ppm     ASTM D5185m     90     <1	Cadmium	ppm	ASTM D5185m		0	0	
Barium     ppm     ASTM D5185m     90     0     0        Molybdenum     ppm     ASTM D5185m     0     0        Manganese     ppm     ASTM D5185m     <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum     ppm     ASTM D5185m     0     0        Manganese     ppm     ASTM D5185m     90     <1	Boron	ppm	ASTM D5185m		0	0	
Manganese     ppm     ASTM D5185m     <1     <1        Magnesium     ppm     ASTM D5185m     90     <1	Barium	ppm	ASTM D5185m	90	0	0	
Magnesium     ppm     ASTM D5185m     90     <1     24        Calcium     ppm     ASTM D5185m     2     0     0        Phosphorus     ppm     ASTM D5185m     1     2        Zinc     ppm     ASTM D5185m     0     15        CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     0     0        Sodium     ppm     ASTM D5185m     >25     0     0        Sodium     ppm     ASTM D5185m     >20     0     11        Potassium     ppm     ASTM D5185m     >20     0     11        Water     %     ASTM D5185m     >20     0     0.013        ppm Water     ppm     ASTM D6304     >0.05     0.004     0.013        Particles >4µm     ASTM D7647     978     3627	Molybdenum	ppm	ASTM D5185m		0	0	
Calcium     ppm     ASTM D5185m     2     0     0        Phosphorus     ppm     ASTM D5185m     1     2        Zinc     ppm     ASTM D5185m     0     15        CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     0     0        Sodium     ppm     ASTM D5185m     >25     0     0        Sodium     ppm     ASTM D5185m     >20     0     11        Potassium     ppm     ASTM D5185m     >20     0     11        Water     %     ASTM D5185m     >20     0     11        ppm Water     ppm     ASTM D6304     >0.05     0.004     0.013        Particles >4µm     ASTM D7647     978     3627        Particles >4µm     ASTM D7647     >1300     343     1850	Manganese	ppm	ASTM D5185m		<1	<1	
Phosphorus     ppm     ASTM D5185m     1     2        Zinc     ppm     ASTM D5185m     0     15        CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     0     0        Sodium     ppm     ASTM D5185m     >20     0     11        Potassium     ppm     ASTM D5185m     >20     0     11        Water     %     ASTM D6304     >0.05     0.004     0.013        ppm Water     ppm     ASTM D6304     >500     42.8     132.2        FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647     >1300     343     1850        Particles >6µm     ASTM D7647     >20     7     42        Particles >21µm     ASTM D7647     >3     0     0	Magnesium	ppm	ASTM D5185m	90	<1	24	
Zinc     ppm     ASTM D5185m     0     15        CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     0     0        Sodium     ppm     ASTM D5185m     >25     0     0        Potassium     ppm     ASTM D5185m     >20     0     11        Potassium     ppm     ASTM D5185m     >20     0     11        Water     %     ASTM D6304     >0.05     0.004     0.013        ppm Water     ppm     ASTM D6304     >500     42.8     132.2        FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647     978     3627        Particles >6µm     ASTM D7647     >1300     343     1850        Particles >1µm     ASTM D7647     >20     7     42	Calcium	ppm	ASTM D5185m	2	0	0	
CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     0     0        Sodium     ppm     ASTM D5185m     >25     0     0     1       Potassium     ppm     ASTM D5185m     >20     0     11        Water     %     ASTM D6304     >0.05     0.004     0.013        ppm Water     ppm     ASTM D6304     >500     42.8     132.2        FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647     978     3627        Particles >6µm     ASTM D7647     >1300     343     1850        Particles >1µm     ASTM D7647     >20     7     42        Particles >21µm     ASTM D7647     >20     7     422        Particles >38µm     ASTM D7647     >3     0     0 <td>Phosphorus</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <td>1</td> <td>2</td> <td></td>	Phosphorus	ppm	ASTM D5185m		1	2	
Silicon     ppm     ASTM D5185m     >25     0     0        Sodium     ppm     ASTM D5185m     <1	Zinc	ppm	ASTM D5185m		0	15	
Sodium     ppm     ASTM D5185m     <1     7        Potassium     ppm     ASTM D5185m     >20     0     11        Water     %     ASTM D6304     >0.05     0.004     0.013        ppm Water     ppm     ASTM D6304     >500     42.8     132.2        FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647     978     3627         Particles >6µm     ASTM D7647     >1300     343     1850        Particles >6µm     ASTM D7647     >80     30     241        Particles >14µm     ASTM D7647     >20     7     42        Particles >38µm     ASTM D7647     >3     0     0        Particles >71µm     ASTM D7647     >3     0     0        Oil Cleanliness     ISO 4406 (c)     >/17/13     17/16/12     18/15	CONTAMINANTS	6	method	limit/base	current	history1	history2
Potassium     ppm     ASTM D5185m     >20     0     11        Water     %     ASTM D6304     >0.05     0.004     0.013        ppm Water     ppm     ASTM D6304     >500     42.8     132.2        FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647     978     3627        Particles >6µm     ASTM D7647     978     3627        Particles >6µm     ASTM D7647     >1300     343     1850        Particles >14µm     ASTM D7647     >20     7     42        Particles >21µm     ASTM D7647     >20     7     422        Particles >38µm     ASTM D7647     >3     0     0        Particles >71µm     ASTM D7647     >3     0     0        Oil Cleanliness     ISO 4406 (c)     >/17/13     17/16/12     18/15        FLUID DEGRADATION	Silicon	ppm	ASTM D5185m	>25	0	0	
Water     %     ASTM D6304     >0.05     0.004     0.013        ppm Water     ppm     ASTM D6304     >500     42.8     132.2        FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647     978     3627        Particles >6µm     ASTM D7647     >1300     343     1850        Particles >14µm     ASTM D7647     >20     7     421        Particles >21µm     ASTM D7647     >20     7     422        Particles >38µm     ASTM D7647     >3     0     0        Particles >71µm     ASTM D7647     >3     0     0        Oil Cleanliness     ISO 4406 (c)     >/17/13     17/16/12     18/15        FLUID DEGRADATION     method     limit/base     current     history1     history2	Sodium	ppm	ASTM D5185m		<1	7	
ppm Water     ppm     ASTM D6304     >500     42.8     132.2        FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647     978     3627        Particles >6µm     ASTM D7647     >1300     343     A 1850        Particles >6µm     ASTM D7647     >20     7     A 42        Particles >1µm     ASTM D7647     >20     7     A 42        Particles >38µm     ASTM D7647     >3     0     0        Particles >71µm     ASTM D7647     >3     0         Oil Cleanliness     ISO 4406 (c)    /17/13     17/16/12     18/15        FLUID DEGRADATION     method     limit/base     current     history1     history2	Potassium	ppm	ASTM D5185m	>20	0	11	
FLUID CLEANLINESS   method   limit/base   current   history1   history2     Particles >4µm   ASTM D7647   978   3627      Particles >6µm   ASTM D7647   >1300   343   1850      Particles >6µm   ASTM D7647   >80   30   241      Particles >14µm   ASTM D7647   >20   7   422      Particles >21µm   ASTM D7647   >20   7   422      Particles >38µm   ASTM D7647   >4   0   1      Particles >71µm   ASTM D7647   >3   0   0      Oil Cleanliness   ISO 4406 (c)   >/17/13   17/16/12   18/15      FLUID DEGRADATION   method   limit/base   current   history1   history2	Water	%	ASTM D6304	>0.05	0.004	0.013	
Particles >4µm   ASTM D7647   978   3627      Particles >6µm   ASTM D7647   >1300   343   ▲ 1850      Particles >14µm   ASTM D7647   >80   30   ▲ 241      Particles >14µm   ASTM D7647   >20   7   ▲ 42      Particles >21µm   ASTM D7647   >20   7   ▲ 42      Particles >38µm   ASTM D7647   >4   0   1      Particles >71µm   ASTM D7647   >3   0   0      Oil Cleanliness   ISO 4406 (c)   >/17/13   17/16/12   ▲ 18/15      FLUID DEGRADATION   method   limit/base   current   history1   history2	ppm Water	ppm	ASTM D6304	>500	42.8	132.2	
Particles >6μm   ASTM D7647   >1300   343   1850      Particles >14μm   ASTM D7647   >80   30   241      Particles >21μm   ASTM D7647   >20   7   42      Particles >21μm   ASTM D7647   >20   7   422      Particles >38μm   ASTM D7647   >4   0   1      Particles >38μm   ASTM D7647   >3   0   0      Particles >71μm   ASTM D7647   >3   0   0      Oil Cleanliness   ISO 4406 (c)   >/17/13   17/16/12   18/15      FLUID DEGRADATION   method   limit/base   current   history1   history2	FLUID CLEANLIN	NESS	method	limit/base	current	history1	history2
Particles >14μm   ASTM D7647   >80   30   ▲ 241      Particles >21μm   ASTM D7647   >20   7   ▲ 42      Particles >38μm   ASTM D7647   >4   0   1      Particles >38μm   ASTM D7647   >4   0   0      Particles >71μm   ASTM D7647   >3   0   0      Oil Cleanliness   ISO 4406 (c)   >/17/13   17/16/12   ▲ 18/15      FLUID DEGRADATION   method   limit/base   current   history1   history2	Particles >4µm		ASTM D7647		978	3627	
Particles >21μm     ASTM D7647     >20     7     42        Particles >38μm     ASTM D7647     >4     0     1        Particles >38μm     ASTM D7647     >4     0     0        Particles >71μm     ASTM D7647     >3     0     0        Oil Cleanliness     ISO 4406 (c)     >/17/13     17/16/12     18/15        FLUID DEGRADATION     method     limit/base     current     history1     history2	Particles >6µm		ASTM D7647	>1300	343	<b>1</b> 850	
Particles >38μm     ASTM D7647     >4     0     1        Particles >71μm     ASTM D7647     >3     0     0        Oil Cleanliness     ISO 4406 (c)     >/17/13     17/16/12     ▲ 18/15        FLUID DEGRADATION     method     limit/base     current     history1     history2	Particles >14µm		ASTM D7647	>80	30	<b>4</b> 241	
Particles >71μm     ASTM D7647     >3     0     0        Oil Cleanliness     ISO 4406 (c)     >/17/13     17/16/12     ▲ 18/15        FLUID DEGRADATION     method     limit/base     current     history1     history2	Particles >21µm		ASTM D7647	>20	7	<b>4</b> 2	
Oil Cleanliness   ISO 4406 (c)   >/17/13   17/16/12   A 18/15      FLUID DEGRADATION   method   limit/base   current   history1   history2	Particles >38µm		ASTM D7647	>4	0	1	
FLUID DEGRADATION method limit/base current history1 history2	Particles >71µm		ASTM D7647	>3	0	0	
	Oil Cleanliness		ISO 4406 (c)	>/17/13	17/16/12	▲ 18/15	
Acid Number (AN)     mg KOH/g     ASTM D8045     0.4     0.33     0.322	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045	0.4	0.33	0.322	



Water

Viscosity @ 40°C

1.20

0.9 <u>ل</u>ة 0.72

2<sup>2</sup>0.48

0.2

0.00

52

50

48

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75 44

47

40 38 Vov1/7

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<u>응</u> 3k

ting 21

2 2k

1

18

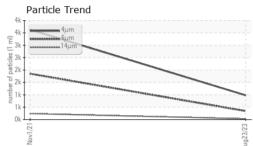
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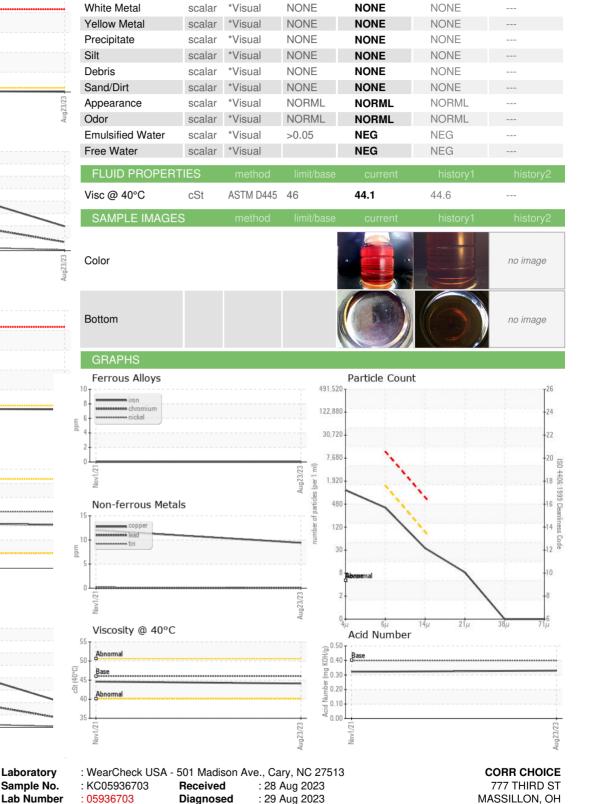
Abnorma

Particle Trend

## **OIL ANALYSIS REPORT**







: Angela Borella

: 10621974

: IND 2

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

Diagnostician

F:

Certificate L2367

Unique Number

Test Package

Contact/Location: Service Manager - CORMAS

US 44647

Contact: Service Manager