

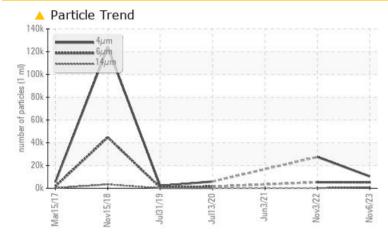
## **PROBLEM SUMMARY**

# KAESER BSD 60 5567027 (S/N 1215)

Compressor

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

### COMPONENT CONDITION SUMMARY



#### 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.

PROBLEMATIC TEST	RESULTS			
Sample Status		ABNORMAL	ABNORMAL	ABNORMAL
Particles >6µm	ASTM D7647 >1300	<u> </u>	<u> </u>	
Particles >14µm	ASTM D7647 >80	<b>A</b> 1006	🔺 165	
Particles >21µm	ASTM D7647 >20	<u> </u>	<u> </u>	
Oil Cleanliness	ISO 4406 (c) >/17/	13 🔺 <b>21/20/17</b>	🔺 22/20/15	

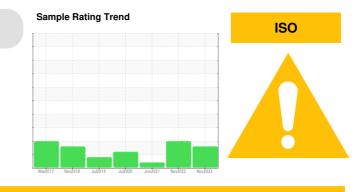
Customer Id: BRADEN Sample No.: KCPA007988 Lab Number: 06008338 Test Package: IND 2



To manage this report scan the QR code

*To discuss the diagnosis or test data:* Don Baldridge +1 <u>don.b505@comcast.net</u>

*To change component or sample information:* Customer Service +1 1-800-237-1369 <u>customerservice@wearcheck.com</u>



#### **RECOMMENDED ACTIONS**

There are no recommended actions for this sample.

#### HISTORICAL DIAGNOSIS

#### 03 Nov 2022 Diag: Jonathan Hester



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 high amount of particulates present in the oil. The oil viscosity is higher than normal. The AN level is acceptable for this fluid.

03 Jun 2021 Diag: Don Baldridge

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. We were unable to perform a particle count due to a high concentration of particles present in this sample.All component wear rates are normal. Moderate concentration of visible dirt/debris present in the oil. The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service.



#### 13 Jul 2020 Diag: Jonathan Hester

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

view report

Report Id: BRADEN [WUSCAR] 06008338 (Generated: 11/17/2023 11:59:44) Rev: 1



# **OIL ANALYSIS REPORT**

#### Machine Id KAESER BSD 60 5567027 (S/N 1215) Component

Compressor Fluid

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

### 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

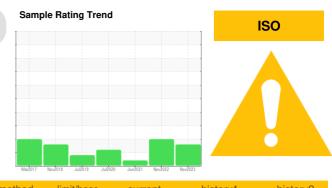
All component wear rates are normal.

#### Contamination

There is a high 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.



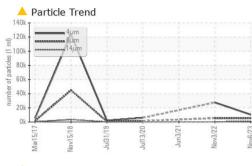
Sample Date     Client Info     06 Nov 2023     03 Nov 2022     03 Jun 2021       Machine Age     hrs     Client Info     2806     25806     18887       Dil Age     hrs     Client Info     0     7000     2711       Dil Changed     Client Info     NA     Changed     ABNORMAL     ABN	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age Di AgehrsClient Info298062580618987Di Age Di AgeClient InfoNA700027110Sample StatusIIme thodMANABNORMALABNORMALABNORMALABNORMALWEAR METALSmethodImit/basecurrenthistoryNistoryIronppmASTM DS185n>5001<1ChromiumppmASTM DS185n>30000NickelppmASTM DS185n>30000TitaniumppmASTM DS185n>10000RuminumppmASTM DS185n>10000CopperppmASTM DS185n>10000AdminonyppmASTM DS185n>10000AdminonyppmASTM DS185n10000AdminonyppmASTM DS185n0000AdminonyppmASTM DS185n0000AdminonyppmASTM DS185n0000MagnesiumppmASTM DS185n0000AdminonyppmASTM DS185n0000AdminonyppmASTM DS185n0000AdminonyppmASTM DS185n0000AdminonyppmASTM DS185n0000 </th <th>Sample Number</th> <th></th> <th>Client Info</th> <th></th> <th>KCPA007988</th> <th>KCP47952D</th> <th>KCP32648</th>	Sample Number		Client Info		KCPA007988	KCP47952D	KCP32648
Dil Age hrs Client Info NA Changed Changed   Sample Status Client Info NA Changed ABNORMAL   WEAR METALS method limit/base current history1 history2   fon ppm ASTM 05185m >50 0 1 <1	Sample Date		Client Info		06 Nov 2023	03 Nov 2022	03 Jun 2021
Oil Changed Client Info N/A Changed ABNORMAL   Sample Status Image ABNORMAL ABNORMAL ABNORMAL ABNORMAL   WEAR METALS method limit/base current history1 Mistory2   Iron ppm ASTM DSIS5m >50 0 1 <1	Machine Age	hrs	Client Info		29806	25806	18987
Dil Changed Client Info N/A Changed Changed   Sample Status Image ABNORMAL ABNORMAL ABNORMAL ABNORMAL   WEAR METALS method limit/base current history1 Mistory2   Iron ppm ASTM DSI85m >50 0 1 <1	Oil Age	hrs	Client Info		0	7000	2711
Sample Status     method     Imit/base     current     history1     ABNORMAL       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     0     1     <1	Oil Changed		Client Info		N/A	Changed	Changed
Iron     ppm     ASTM D5185m     >50     0     1     <1       Chromium     ppm     ASTM D5185m     >30     0     0     0       Nickel     ppm     ASTM D5185m     >33     0     0     0       Silver     ppm     ASTM D5185m     >22     0     0     <1	Sample Status				ABNORMAL		ABNORMAL
Dromium     ppm     ASTM D5185m     >10     0     0     0       Nickel     ppm     ASTM D5185m     >3     0     0     0       Nickel     ppm     ASTM D5185m     >2     0     0     <1	WEAR METALS		method	limit/base	current	history1	history2
Dromium     ppm     ASTM D5185m     >10     0     0     0       Nickel     ppm     ASTM D5185m     >3     0     0     0       Nickel     ppm     ASTM D5185m     >2     0     0     <1	Iron	maa	ASTM D5185m	>50	0	1	<1
Nickel     ppm     ASTM D5185m     >3     0     0     0       Titanium     ppm     ASTM D5185m     >2     0     0      1       Silver     ppm     ASTM D5185m     >2     0     0      1     0       Lead     ppm     ASTM D5185m     >10     0     0     0     1       Antimony     ppm     ASTM D5185m     >50     7     7     6     0       Antimony     ppm     ASTM D5185m     >10     0     0     0     0       Vanadium     ppm     ASTM D5185m     0     0     0     0     0       Adaminum     ppm     ASTM D5185m     0	Chromium			>10		0	
Intanium     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >2     0     1     0       Lead     ppm     ASTM D5185m     >10     0     0     0       Copper     ppm     ASTM D5185m     >10     0     0     0     0       Copper     ppm     ASTM D5185m     >10     0     0     0     0       Vanadium     ppm     ASTM D5185m     >10     0     0     0     0       Addminum     ppm     ASTM D5185m     0     0     0     0     0       Addminum     ppm     ASTM D5185m     0     0     0     0     0       Boron     ppm     ASTM D5185m     90     0     9     0							
Silver     ppm     ASTM D5185m     >2     0     0     <1       Aluminum     ppm     ASTM D5185m     >10     0     0     0       Copper     ppm     ASTM D5185m     >50     7     7     0       Tin     ppm     ASTM D5185m     >50     7     7     0       Antimony     ppm     ASTM D5185m     >10     0     0     <1							
Aluminum     ppm     ASTM D5185m     >10     0     1     0       Lead     ppm     ASTM D5185m     >10     0     0     0       Copper     ppm     ASTM D5185m     >50     7     7     6       Tin     ppm     ASTM D5185m     >10     0     0     <1							
Lead     ppm     ASTM D5185m     >10     0     0     0       Copper     ppm     ASTM D5185m     >50     7     7     6       Tin     ppm     ASTM D5185m     >10     0     0     <1							
Copper     ppm     ASTM D5185m     >50     7     7     6       Tin     ppm     ASTM D5185m     >10     0     0     <1							
Tin     ppm     ASTM D5185m     >10     0     0     <1       Antimony     ppm     ASTM D5185m      0       Vanadium     ppm     ASTM D5185m     <1     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0     0     0     14       Barium     ppm     ASTM D5185m     0     0     0     0     0       Magnesium     ppm     ASTM D5185m     0     0     1     7     <1       Calcium     ppm     ASTM D5185m     100     <1     7     <1       Calcium     ppm     ASTM D5185m     0     <1     14     4       Zinc     ppm     ASTM D5185m     0     <1     14     4       Zinc     ppm     ASTM D5185m     20     <1     1     0							
Antimony     ppm     ASTM D5185m       0       Vanadium     ppm     ASTM D5185m     <1							
Vanadium     ppm     ASTM D5185m     <1     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0     0     9     0       Magnesium     ppm     ASTM D5185m     0     0     0     0     0     0       Magnesium     ppm     ASTM D5185m     0     0     0     0     0       Magnesium     ppm     ASTM D5185m     0     <1     7     <1       Calcium     ppm     ASTM D5185m     0     <1     14     4       Zinc     ppm     ASTM D5185m     0     <1     14     4       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     <1     3     0       Vater     %     ASTM D5185m				>10			
Cadmium     pm     ASTM D5185m     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0     0     0     14       Barium     ppm     ASTM D5185m     0     0     0     0     0     0       Molybdenum     ppm     ASTM D5185m     0     0     0     0     0     0       Magnesium     ppm     ASTM D5185m     0     <1     7     <1       Calcium     ppm     ASTM D5185m     0     <1     7     <1       Calcium     ppm     ASTM D5185m     0     <1     14     4       Zinc     ppm     ASTM D5185m     0     <1     14     4       Zinc     ppm     ASTM D5185m     0     <1     14     4       Zinc     ppm     ASTM D5185m     20     20268     19455     17115       CONTAMINANTS     method     l	-						
ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0     0     14       Barium     ppm     ASTM D5185m     90     0     9     0       Molybdenum     ppm     ASTM D5185m     0     0     0     0     0       Magnese     ppm     ASTM D5185m     100     <1							
Boron     ppm     ASTM D5185m     0     0     0     14       Barium     ppm     ASTM D5185m     90     0     9     0       Molybdenum     ppm     ASTM D5185m     0     0     0     0       Manganese     ppm     ASTM D5185m     100     <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium     ppm     ASTM D5185m     90     0     9     0       Molybdenum     ppm     ASTM D5185m     0     0     0     0       Magnesium     ppm     ASTM D5185m     100     <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum     ppm     ASTM D5185m     0     0     0     0       Manganese     ppm     ASTM D5185m     100     <1	Boron	ppm	ASTM D5185m	0	0	0	14
Marganesse   ppm   ASTM D5185m   <1	Barium	ppm	ASTM D5185m	90	0	9	0
Magnesium     ppm     ASTM D5185m     100     <1     7     <1       Calcium     ppm     ASTM D5185m     0     0     2     0       Phosphorus     ppm     ASTM D5185m     0     <1	Molybdenum	ppm	ASTM D5185m	0	0	0	0
Calcium     ppm     ASTM D5185m     0     0     2     0       Phosphorus     ppm     ASTM D5185m     0     <1	Manganese	ppm	ASTM D5185m		<1	<1	0
Phosphorus     ppm     ASTM D5185m     0     <1     14     4       Zinc     ppm     ASTM D5185m     0     0     4     0       Sulfur     ppm     ASTM D5185m     23500     20268     19455     17115       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     0     <1	Magnesium	ppm	ASTM D5185m	100	<1	7	<1
Zinc     ppm     ASTM D5185m     0     0     4     0       Sulfur     ppm     ASTM D5185m     23500     20268     19455     17115       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     0     <1	Calcium	ppm	ASTM D5185m	0	0	2	0
Zinc     ppm     ASTM D5185m     0     0     4     0       Sulfur     ppm     ASTM D5185m     23500     20268     19455     17115       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     0     <1	Phosphorus	ppm	ASTM D5185m	0	<1	14	4
Sulfur     ppm     ASTM D5185m     23500     20268     19455     17115       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     0     <1     1       Sodium     ppm     ASTM D5185m     >25     0     <1     1       Potassium     ppm     ASTM D5185m     >20     <1     3     0       Water     %     ASTM D6304     >0.05     0.006     0.011     0.021       ppm     ASTM D6304     >500     67.8     110.7     213.2       FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647     >1300     5222     5298        Particles >14µm     ASTM D7647     >300     5298        Particles >14µm     ASTM D7647     >20     298     30        Particles >21µm     ASTM D7647     >3     0     0   <	Zinc	ppm	ASTM D5185m	0	0	4	0
Silicon   ppm   ASTM D5185m   >25   0   <1   1     Sodium   ppm   ASTM D5185m   >20   <1   6   <1     Potassium   ppm   ASTM D5185m   >20   <1   3   0     Water   %   ASTM D6304   >0.05   0.006   0.011   0.021     ppm Water   ppm   ASTM D6304   >500   67.8   110.7   213.2     FLUID CLEANLINESS   method   limit/base   current   history1   history2     Particles >4µm   ASTM D7647   10421   27546      Particles >6µm   ASTM D7647   >1300   5222   5298      Particles >1µm   ASTM D7647   >20   298   30      Particles >21µm   ASTM D7647   >20   298   30      Particles >38µm   ASTM D7647   >3   0   0      Particles >71µm   ASTM D7647   >3   0   0      FLUID DEGRADATION   method   limit/base   current   history1   histor	Sulfur			23500	20268	19455	17115
Sodium     ppm     ASTM D5185m     <1     6     <1       Potassium     ppm     ASTM D5185m     >20     <1	CONTAMINANTS		method	limit/base	current	history1	history2
Sodium     ppm     ASTM D5185m     <1     6     <1       Potassium     ppm     ASTM D5185m     >20     <1	Silicon	maa	ASTM D5185m	>25	0	<1	1
Potassium     ppm     ASTM D5185m     >20     <1     3     0       Water     %     ASTM D6304     >0.05     0.006     0.011     0.021       ppm     Water     pm     ASTM D6304     >500     67.8     110.7     213.2       FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647     10421     27546        Particles >6µm     ASTM D7647     >1300     5222     5298        Particles >14µm     ASTM D7647     >80     1006     165        Particles >14µm     ASTM D7647     >20     298     30        Particles >21µm     ASTM D7647     >4     9     1        Particles >38µm     ASTM D7647     >3     0     0        Particles >71µm     ASTM D7647     >3     0     0        FLUID DEGRADATION     method     limit/base     current     history1     history2			ASTM D5185m			6	<1
Water     %     ASTM D6304     >0.05     0.006     0.011     0.021       ppm Water     ppm     ASTM D6304     >500     67.8     110.7     213.2       FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647     10421     27546        Particles >6µm     ASTM D7647     >1300     5222     5298        Particles >14µm     ASTM D7647     >80     1006     165        Particles >21µm     ASTM D7647     >20     298     30        Particles >38µm     ASTM D7647     >4     9     1        Particles >71µm     ASTM D7647     >3     0     0        Oil Cleanliness     ISO 4406 (c)     >/17/13     21/20/17     22/20/15        FLUID DEGRADATION     method     limit/base     current     history1     history2       Acid Number (AN)     mg KOH/g     ASTM D8045     1.0     0.47     0.58	Potassium			>20			
ppm Water     ppm     ASTM D6304     >500     67.8     110.7     213.2       FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647     10421     27546        Particles >6µm     ASTM D7647     >1300     5222     5298        Particles >6µm     ASTM D7647     >80     1006     165        Particles >14µm     ASTM D7647     >20     298     30        Particles >21µm     ASTM D7647     >4     9     1        Particles >38µm     ASTM D7647     >4     9     1        Particles >71µm     ASTM D7647     >3     0     0        Oil Cleanliness     ISO 4406 (c)    /17/13     21/20/17     22/20/15        FLUID DEGRADATION     method     limit/base     current     history1     history2       Acid Number (AN)     mg K0H/g     ASTM D8045     1.0     0.47     0.58     0.456 <td></td> <td></td> <td></td> <td></td> <th></th> <td></td> <td></td>							
Particles >4µm   ASTM D7647   10421   27546      Particles >6µm   ASTM D7647   >1300   5222   5298      Particles >14µm   ASTM D7647   >80   1006   165      Particles >14µm   ASTM D7647   >80   1006   165      Particles >21µm   ASTM D7647   >20   298   30      Particles >38µm   ASTM D7647   >4   9   1      Particles >38µm   ASTM D7647   >3   0   0      Particles >71µm   ASTM D7647   >3   0   0      Oil Cleanliness   ISO 4406 (c)   >/17/13   21/20/17   22/20/15      FLUID DEGRADATION   method   limit/base   current   history1   history2     Acid Number (AN)   mg K0H/g   ASTM D8045   1.0   0.47   0.58   0.456	ppm Water						
Particles >6µm   ASTM D7647   >1300   ▲ 5222   ▲ 5298      Particles >14µm   ASTM D7647   >80   ▲ 1006   ▲ 165      Particles >21µm   ASTM D7647   >20   ▲ 298   ▲ 30      Particles >38µm   ASTM D7647   >20   ▲ 298   ▲ 30      Particles >38µm   ASTM D7647   >4   9   1      Particles >71µm   ASTM D7647   >3   0   0      Oil Cleanliness   ISO 4406 (c)   >/17/13   ▲ 21/20/17   ▲ 22/20/15      FLUID DEGRADATION   method   limit/base   current   history1   history2     Acid Number (AN)   mg KOH/g   ASTM D8045   1.0   0.47   0.58   0.456	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >6µm   ASTM D7647   >1300   ▲ 5222   ▲ 5298      Particles >14µm   ASTM D7647   >80   ▲ 1006   ▲ 165      Particles >21µm   ASTM D7647   >20   ▲ 298   ▲ 30      Particles >38µm   ASTM D7647   >20   ▲ 298   ▲ 30      Particles >38µm   ASTM D7647   >4   9   1      Particles >71µm   ASTM D7647   >3   0   0      Oil Cleanliness   ISO 4406 (c)   >/17/13   ▲ 21/20/17   ▲ 22/20/15      FLUID DEGRADATION   method   limit/base   current   history1   history2     Acid Number (AN)   mg KOH/g   ASTM D8045   1.0   0.47   0.58   0.456	Particles >4µm		ASTM D7647		10421	27546	
Particles >14µm   ASTM D7647   >80   ▲ 1006   ▲ 165      Particles >21µm   ASTM D7647   >20   ▲ 298   ▲ 30      Particles >38µm   ASTM D7647   >4   9   1      Particles >38µm   ASTM D7647   >3   0   0      Particles >71µm   ASTM D7647   >3   0   0      Oil Cleanliness   ISO 4406 (c)   >/17/13   ▲ 21/20/17   ▲ 22/20/15      FLUID DEGRADATION   method   limit/base   current   history1   history2     Acid Number (AN)   mg KOH/g   ASTM D8045   1.0   0.47   0.58   0.456	Particles >6µm		ASTM D7647	>1300	<u> </u>	▲ 5298	
Particles >21μm     ASTM D7647     >20     298     30        Particles >38μm     ASTM D7647     >4     9     1        Particles >38μm     ASTM D7647     >4     9     1        Particles >71μm     ASTM D7647     >3     0     0        Oil Cleanliness     ISO 4406 (c)     >/17/13     21/20/17     22/20/15        FLUID DEGRADATION     method     limit/base     current     history1     history2       Acid Number (AN)     mg KOH/g     ASTM D8045     1.0     0.47     0.58     0.456							
Particles >38μm     ASTM D7647     >4     9     1        Particles >71μm     ASTM D7647     >3     0     0        Oil Cleanliness     ISO 4406 (c)     >/17/13     ▲ 21/20/17     ▲ 22/20/15        FLUID DEGRADATION     method     limit/base     current     history1     history2       Acid Number (AN)     mg KOH/g     ASTM D8045     1.0     0.47     0.58     0.456	-						
Particles >71μm     ASTM D7647     >3     0     0        Oil Cleanliness     ISO 4406 (c)     >/17/13     ▲ 21/20/17     ▲ 22/20/15        FLUID DEGRADATION     method     limit/base     current     history1     history2       Acid Number (AN)     mg KOH/g     ASTM D8045     1.0     0.47     0.58     0.456							
Oil Cleanliness     ISO 4406 (c)     >/17/13     ▲ 21/20/17     ▲ 22/20/15        FLUID DEGRADATION     method     limit/base     current     history1     history2       Acid Number (AN)     mg KOH/g     ASTM D8045     1.0     0.47     0.58     0.456							
FLUID DEGRADATION     method     limit/base     current     history1     history2       Acid Number (AN)     mg KOH/g     ASTM D8045     1.0     0.47     0.58     0.456							
Acid Number (AN) mg KOH/g ASTM D8045 1.0 0.47 0.58 0.456			( )				
	Acid Number (AN)	mg KOH/g	ASTM D8045				

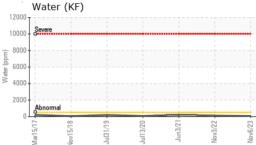
Report Id: BRADEN [WUSCAR] 06008338 (Generated: 11/17/2023 11:59:44) Rev: 1

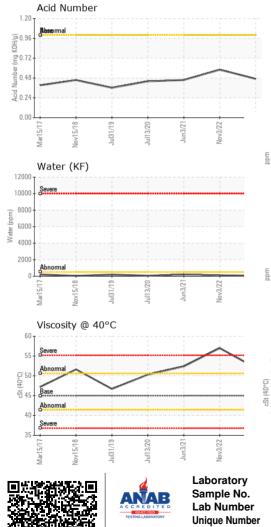
Contact/Location: SERVICE MANAGER ? - BRADEN



# **OIL ANALYSIS REPORT**

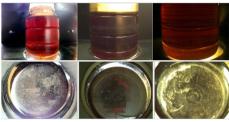




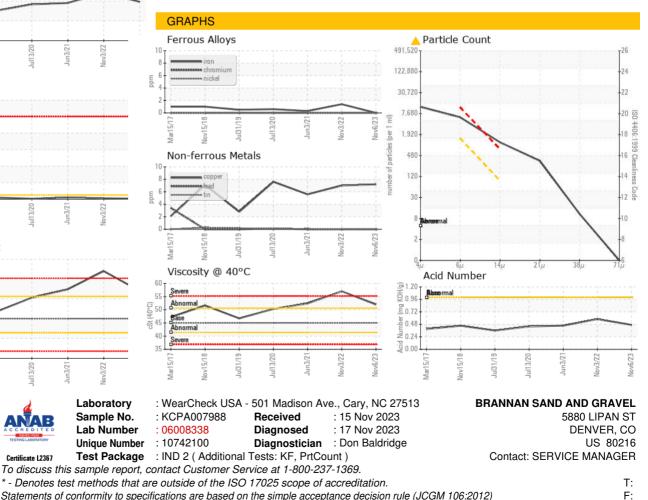


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	🔺 MODER
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.05	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	45	52.0	▲ 56.99	52.4
SAMPLE IMAGES	S	method	limit/base	current	history1	history2





Bottom



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

Contact/Location: SERVICE MANAGER ? - BRADEN