

OIL ANALYSIS REPORT

Sample Rating Trend

ISO

Machine Id 6597242 (S/N NOT GIVEN)

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

DIAGNOSIS

Recommendation

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 high 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 acceptable for the time in service.

Sample Number Client Info KCA013810 KCPA007545 Sample Date Client Info 04 Apr 2024 10 Oct 2023 Machine Age hrs Client Info 4420 5598 Oll Age hrs Client Info 900 0 Oll Age hrs Client Info 900 N/A Sample Status I Client Info ABNORMAL ABNORMAL WEAR METALS method Imit/base current history Nickel ppm ASTM 05185m >10 <1 0 Nickel ppm ASTM 05185m >2 0 Auminum ppm ASTM 05185m >10 1 0 Auminum ppm ASTM 05185m >10 1 0 Auminum ppm ASTM 05185m >10 1 0 Copper pp	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2	
Machine Age hrs Client Info 4420 3598 Oil Age hrs Client Info 900 0 Sample Status Image Image Current ABNORMAL ABNORMAL WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >50 1 0 Nickel ppm ASTM D5185m >3 <1 0 Silver ppm ASTM D5185m >10 1 0 Aluminum ppm ASTM D5185m >10 1 0 Adadium ppm ASTM D5185m 0 0 0 <td>Sample Number</td> <td></td> <td>Client Info</td> <td></td> <th>KCA013810</th> <td>KCPA007545</td> <td></td>	Sample Number		Client Info		KCA013810	KCPA007545		
Oil Age hrs Client Info 900 0 Sample Status I Image N/A WEAR METALS method limit/base current history1 history2 Iron ppm ASTM 05185m >50 1 0 Othornium ppm ASTM 05185m >3 <1 0 Nickel ppm ASTM 05185m >3 <1 0 Aluminum ppm ASTM 05185m >3 <1 0 Aluminum ppm ASTM 05185m >10 1 0 Aluminum ppm ASTM 05185m >10 1 0 Vanadium ppm ASTM 05185m >10 1 0 Vanadium ppm ASTM 05185m 0 10 0 Vanadium ppm ASTM 05185m 0 1	Sample Date		Client Info		04 Apr 2024	10 Oct 2023		
Oil Changed Sample Status Client Info Changed ABNORMAL N/A WEAR METALS method limit/base current history1 history2 Iron ppm ASTM 05185m >50 1 0 Othornium ppm ASTM 05185m >50 1 0 Nickel ppm ASTM 05185m >3 <1 0 Silver ppm ASTM 05185m >3 <1 0 Auminum ppm ASTM 05185m >10 1 0 Auminum ppm ASTM 05185m >10 1 0 Copper ppm ASTM 05185m >10 1 0 Adminum ppm ASTM 05185m 0 0 0 Admadum ppm ASTM 05185m 0 1 0 Admadum ppm ASTM 05185m 0 1	Machine Age	hrs	Client Info		4420	3598		
Sample Status Image ABNORMAL ABNORMAL ABNORMAL WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 1 0 Nickel ppm ASTM D5185m >3 <1 0 Nickel ppm ASTM D5185m >3 <1 0 Aluminum ppm ASTM D5185m >3 <1 0 Aluminum ppm ASTM D5185m >10 2 0 Aluminum ppm ASTM D5185m >10 1 0 Copper ppm ASTM D5185m <1 0 Adminum ppm ASTM D5185m <1 0 Adminum ppm ASTM D5185m 0 1 0	Oil Age	hrs	Client Info		900	0		
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 1 0 Nickel ppm ASTM D5185m >3 <1 0 Nickel ppm ASTM D5185m >3 <1 0 Silver ppm ASTM D5185m >2 0 0 Aluminum ppm ASTM D5185m >10 1 0 Lead ppm ASTM D5185m >10 1 0 Vanadium ppm ASTM D5185m >10 1 0 Vanadium ppm ASTM D5185m >10 1 0 ADDITIVES method limit/base current history1 history1 history2 Boron ppm ASTM D5185m 0 0 0 Magnesium ppm ASTM D5185m 0	Oil Changed		Client Info		Changed	N/A		
Iron ppm ASTM D5185m >50 1 0 Nickel ppm ASTM D5185m >3 <1 0 Nickel ppm ASTM D5185m >3 <1 0 Silver ppm ASTM D5185m >2 0 0 Aluminum ppm ASTM D5185m >10 1 0 Aduminum ppm ASTM D5185m >10 2 0 Aduminum ppm ASTM D5185m >10 1 0 Vanadium ppm ASTM D5185m >10 1 0 Vanadium ppm ASTM D5185m <<1 0 Vanadium ppm ASTM D5185m 0 1 0 ADDITIVES method limit/base current history1 history2 Baron ppm ASTM D5185m 0 1 <td>Sample Status</td> <td></td> <td></td> <td></td> <th>ABNORMAL</th> <td>ABNORMAL</td> <td></td>	Sample Status				ABNORMAL	ABNORMAL		
Chromium ppm ASTM D5185m >10 <1	WEAR METALS		method	limit/base	current	history1	history2	
Nickel ppm ASTM D5185m >3 <1	Iron	ppm	ASTM D5185m	>50	1	0		
Titanium ppm ASTM D5185m >3 <1	Chromium	ppm	ASTM D5185m	>10	<1	0		
Silver ppm ASTM D5185m >2 0 0 Aluminum ppm ASTM D5185m >10 1 0 Lead ppm ASTM D5185m >10 2 0 Copper ppm ASTM D5185m >50 2 3 Vanadium ppm ASTM D5185m >50 2 3 Vanadium ppm ASTM D5185m >10 1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 Maganese ppm ASTM D5185m 0 1 Maganese ppm ASTM D5185m 100 5 <1 Phosphorus ppm ASTM D5185m 0 5 <1 Silicon ppm ASTM D5185m >22 0<	Nickel	ppm	ASTM D5185m	>3	<1	0		
Atuminum ppm ASTM D5185m >10 1 0 Lead ppm ASTM D5185m >10 2 0 Copper ppm ASTM D5185m >50 2 3 Vanadium ppm ASTM D5185m >10 1 0 Cadmium ppm ASTM D5185m <10 1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 Marganese ppm ASTM D5185m 0 1 0 Marganese ppm ASTM D5185m 0 56 23 Calcium ppm ASTM D5185m 0 56 21 Marganese ppm ASTM D5185m 0 5 <1 Calcium ppm ASTM D5185m 0 515 <td>Titanium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>3</td> <th><1</th> <td>0</td> <td></td>	Titanium	ppm	ASTM D5185m	>3	<1	0		
Lead ppm ASTM D5185m >10 2 0 Copper ppm ASTM D5185m >50 2 3 Tin ppm ASTM D5185m >10 1 0 Vanadium ppm ASTM D5185m <1 0 Addium ppm ASTM D5185m <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 Magnases ppm ASTM D5185m 0 1 <1 Magnesium ppm ASTM D5185m 0 5 <1 Zinc ppm ASTM D5185m 0 5 <1 Silicon ppm ASTM D5185m 0 5 <1 Sodium ppm ASTM D5185m >25 0 <1	Silver	ppm	ASTM D5185m	>2	0	0		
Copper ppm ASTM D5185m >50 2 3 Tin ppm ASTM D5185m >10 1 0 Vanadium ppm ASTM D5185m <1 0 Addium ppm ASTM D5185m <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 0 1 0 Marganese ppm ASTM D5185m 0 1 Marganese ppm ASTM D5185m 0 5 <1 Marganese ppm ASTM D5185m 0 6 4 Calcium ppm ASTM D5185m 0 6 4 Zinc ppm ASTM D5185m >20 3 <1 <	Aluminum	ppm	ASTM D5185m	>10	1	0		
Tin ppm ASTM D5185m >10 1 0 Vanadium ppm ASTM D5185m >10 1 0 Cadmium ppm ASTM D5185m < <th><1</th> 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 0 1 0 Magnesium ppm ASTM D5185m 0 1 <1	<1	Lead	ppm	ASTM D5185m	>10	2	0	
Tin ppm ASTM D5185m >10 1 0 Vanadium ppm ASTM D5185m <	Copper	ppm	ASTM D5185m	>50	2	3		
Cadmium ppm ASTM D5185m <1		ppm	ASTM D5185m	>10	1	0		
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 90 10 0 Molybdenum ppm ASTM D5185m 0 1 0 Magnesium ppm ASTM D5185m 100 56 23 Calcium ppm ASTM D5185m 100 56 21 Phosphorus ppm ASTM D5185m 0 6 4 Zinc ppm ASTM D5185m 0 6 4 Silicon ppm ASTM D5185m >25 0 <1 Sodium ppm ASTM D5185m >25 0 <1 Sodium ppm ASTM D5185m >20 3 <1 Sodium ppm ASTM D6304 >0.05 0.	Vanadium	ppm	ASTM D5185m		<1	0		
Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 90 10 0 Molybdenum ppm ASTM D5185m 0 1 0 Manganese ppm ASTM D5185m 0 56 23 Magnesium ppm ASTM D5185m 0 5 <1 Calcium ppm ASTM D5185m 0 6 4 Zinc ppm ASTM D5185m 0 21 35 Silicon ppm ASTM D5185m 0 21 35 Sodium ppm ASTM D5185m 20 3 <1 Yotassium ppm ASTM D5185m 20 3 <1 Vater % ASTM D5185m >20 3 <1 Puticles >4µm ASTM D6304 >500 345 174	Cadmium		ASTM D5185m		<1	0		
Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 90 10 0 Molybdenum ppm ASTM D5185m 0 1 0 Manganese ppm ASTM D5185m 0 56 23 Magnesium ppm ASTM D5185m 0 5 <1 Calcium ppm ASTM D5185m 0 6 4 Zinc ppm ASTM D5185m 0 21 35 Silicon ppm ASTM D5185m 0 21 35 Sodium ppm ASTM D5185m 20 3 <1 Yotassium ppm ASTM D5185m 20 3 <1 Vater % ASTM D5185m >20 3 <1 Puticles >4µm ASTM D6304 >500 345 174	ADDITIVES		method	limit/base	current	history1	history2	
Barium ppm ASTM D5185m 90 10 0 Molybdenum ppm ASTM D5185m 0 1 0 Manganese ppm ASTM D5185m 1 <1 Magnesium ppm ASTM D5185m 100 56 23 Calcium ppm ASTM D5185m 0 6 4 Phosphorus ppm ASTM D5185m 0 6 4 Zinc ppm ASTM D5185m 0 21 35 Sodium ppm ASTM D5185m >25 0 <1 Sodium ppm ASTM D5185m >20 3 <1 Vater % ASTM D5185m >20 3 <1 Water % ASTM D5185m >20 345 1740 ppm Water ppm ASTM D6304 >500 345 1740 Particles >4µm ASTM D7647 >10230	Boron	nom	ASTM D5185m	0	0			
Molybdenum ppm ASTM D5185m 0 1 0 Manganese ppm ASTM D5185m 100 56 23 Magnesium ppm ASTM D5185m 100 56 23 Calcium ppm ASTM D5185m 0 6 4 Phosphorus ppm ASTM D5185m 0 6 4 Zinc ppm ASTM D5185m 0 21 35 Solicon ppm ASTM D5185m >25 0 <1 Sodium ppm ASTM D5185m >20 3 <1 Sodium ppm ASTM D6304 >0.05 0.034 0.174 Vater % ASTM D6304 >500 345 1740 Particles >4µm ASTM D7647 10230 Particles >4µm ASTM D7647 >16					-			
Manganese ppm ASTM D5185m 1 <1								
Magnesium ppm ASTM D5185m 100 56 23 Calcium ppm ASTM D5185m 0 6 4 Phosphorus ppm ASTM D5185m 0 6 4 Zinc ppm ASTM D5185m 0 21 35 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 <1 Sodium ppm ASTM D5185m >25 0 <1 Sodium ppm ASTM D5185m >20 3 <1 Vater % ASTM D5185m >20 3 <1 ppm Water ppm ASTM D5185m >20 345 1740 Particles >4µm ASTM D7647 >10230 Particles >4µm ASTM D7647 98 <td>-</td> <td></td> <td></td> <td>0</td> <th></th> <td>-</td> <td></td>	-			0		-		
Calcium ppm ASTM D5185m 0 5 <1	•			100	-			
Phosphorus ppm ASTM D5185m 0 6 4 Zinc ppm ASTM D5185m 0 21 35 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 <1	U							
Zinc ppm ASTM D5185m 0 21 35 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 <1					-			
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 <1 Sodium ppm ASTM D5185m >25 0 <1 Sodium ppm ASTM D5185m >20 3 <1 Potassium ppm ASTM D6304 >0.05 0.034 0.174 Water % ASTM D6304 >500 345 1740 ppm Water ppm ASTM D7647 10230 Particles >4µm ASTM D7647 >1300 2709 Particles >4µm ASTM D7647 >80 98 Particles >21µm ASTM D7647 >20 16 Particles >38µm ASTM D7647 >3 1 Particles >71µm ASTM D7647 >3 1					-			
Silicon ppm ASTM D5185m >25 0 <1		ppiii			21	33		
Sodium ppm ASTM D5185m 15 12 Potassium ppm ASTM D5185m >20 3 <1 Water % ASTM D6304 >0.05 0.034 0.174 ppm Water ppm ASTM D6304 >500 345 1740 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 10230 Particles >6µm ASTM D7647 >1300 2709 Particles >14µm ASTM D7647 >80 98 Particles >21µm ASTM D7647 >20 16 Particles >38µm ASTM D7647 >3 1 Particles >71µm ASTM D7647 >3 1 Oil Cleanliness ISO 4406 (c) >/17/13 21/19/14							history2	
Potassium ppm ASTM D5185m >20 3 <1				>25	-			
Water % ASTM D6304 >0.05 0.034 ▲ 0.174 ppm Water ppm ASTM D6304 >500 345 ▲ 1740 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 10230 Particles >6µm ASTM D7647 >1300 ▲ 2709 Particles >14µm ASTM D7647 >20 16 Particles >21µm ASTM D7647 >20 16 Particles >38µm ASTM D7647 >3 1 Particles >71µm ASTM D7647 >3 1 Oil Cleanliness ISO 4406 (c) /17/13 21/19/14 FLUID DEGRADATION method limit/base current history1 history2					-			
ppm Water ppm ASTM D6304 >500 345 ▲ 1740 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 10230 Particles >6µm ASTM D7647 >1300 ▲ 2709 Particles >6µm ASTM D7647 >80 98 Particles >14µm ASTM D7647 >20 16 Particles >21µm ASTM D7647 >3 1 Particles >38µm ASTM D7647 >3 1 Particles >71µm ASTM D7647 >3 1 Oil Cleanliness ISO 4406 (c) /17/13 21/19/14 FLUID DEGRADATION method Imit/base current history1 history2					-			
FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 10230 Particles >6µm ASTM D7647 >1300 2709 Particles >6µm ASTM D7647 >80 98 Particles >14µm ASTM D7647 >80 98 Particles >21µm ASTM D7647 >20 16 Particles >38µm ASTM D7647 >4 1 Particles >71µm ASTM D7647 >3 1 Oil Cleanliness ISO 4406 (c) >/17/13 21/19/14 FLUID DEGRADATION method limit/base current history1 history2								
Particles >4μm ASTM D7647 10230 Particles >6μm ASTM D7647 >1300 2709 Particles >14μm ASTM D7647 >80 98 Particles >21μm ASTM D7647 >20 16 Particles >21μm ASTM D7647 >20 16 Particles >38μm ASTM D7647 >4 1 Particles >71μm ASTM D7647 >3 1 Oil Cleanliness ISO 4406 (c) >/17/13 21/19/14 FLUID DEGRADATION method limit/base current history1 history2	ppm Water	ppm	ASTM D6304	>500	345	▲ 1740		
Particles >6µm ASTM D7647 >1300 ▲ 2709 Particles >14µm ASTM D7647 >80 ● 98 Particles >21µm ASTM D7647 >20 16 Particles >21µm ASTM D7647 >4 1 Particles >38µm ASTM D7647 >4 1 Particles >71µm ASTM D7647 >3 1 Oil Cleanliness ISO 4406 (c) >/17/13 21/19/14 FLUID DEGRADATION method limit/base current history1 history2		ESS	method	limit/base	current	history1	history2	
Particles >14μm ASTM D7647 >80< 98 Particles >21μm ASTM D7647 >20 16 Particles >38μm ASTM D7647 >4 1 Particles >38μm ASTM D7647 >4 1 Particles >71μm ASTM D7647 >3 1 Oil Cleanliness ISO 4406 (c) >/17/13 ▲ 21/19/14 FLUID DEGRADATION method limit/base current history1 history2	•							
Particles >21μm ASTM D7647 >20 16 Particles >38μm ASTM D7647 >4 1 Particles >37µm ASTM D7647 >3 1 Particles >71µm ASTM D7647 >3 1 Oil Cleanliness ISO 4406 (c) >/17/13 ▲ 21/19/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >6µm		ASTM D7647	>1300	<u> </u>			
Particles >38μm ASTM D7647 >4 1 Particles >71μm ASTM D7647 >3 1 Oil Cleanliness ISO 4406 (c) >/17/13 21/19/14 FLUID DEGRADATION method limit/base current history1 history2					-			
Particles >71μm ASTM D7647 >3 1 Oil Cleanliness ISO 4406 (c) >/17/13 ▲ 21/19/14 FLUID DEGRADATION method limit/base current history1 history2				>20	16			
Oil Cleanliness ISO 4406 (c) >/17/13 ▲ 21/19/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >38µm			>4	1			
FLUID DEGRADATION method limit/base current history1 history2	Particles >71µm		ASTM D7647	>3	1			
	Oil Cleanliness		ISO 4406 (c)	>/17/13	A 21/19/14			
Acid Number (AN) mg KOH/g ASTM D8045 1.0 0.34 0.24	FLUID DEGRADA	TION	method	limit/base	current	history1	history2	
	Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	0.34	0.24		



8000 Water (ppm) 6000 4000 2000 Abnormal

Severe 10000 8000 Water (ppm) 6000 4000 2000 Abnormal

Built for a lifetime."

OIL ANALYSIS REPORT

Particle Trend	VISUAL		method	limit/base	current	history1	history2
4μm 	White Metal	scalar	*Visual	NONE	NONE	NONE	
14μm	Yellow Metal		*Visual	NONE	NONE	NONE	
	Precipitate		*Visual	NONE	NONE	NONE	
	Silt		*Visual	NONE	NONE	NONE	
	Debris		*Visual	NONE	NONE	A MODER	
	Sand/Dirt		*Visual	NONE	NONE	NONE	
lat10/23 - Apr4/24 -	Appearance		*Visual	NORML	NORML	HAZY	
0ct10/23	Odor		*Visual	NORML	NORML	NORML	
	Emulsified Water		*Visual	>0.05	NEG	0.2%	
Water (KF)	Free Water		*Visual		NEG	NEG	
Severe	FLUID PROPER			limit/base			history 0
	Visc @ 40°C		Method ASTM D445	limit/base	current 45.0	history1 44.6	history2
				-			
	SAMPLE IMAGE	S	method	limit/base	current	history1	history2
Abnormal 900 ct 101/2/3 90 ct 101/2/3	Color						no image
Acid Number	Bottom						no image
Oct10/23	GRAPHS Ferrous Alloys			491,520 122,880 30,720	-	it	7 ²⁶ -24 -22
Water (KF)				7,680 97	1		-20
Severe	0ct10/23			Apr4/24	,	、 · · · · · · · · · · · · · · · · · · ·	+18
	_	1-		ies is		N	10
	Non-ferrous Meta	15		of barrie	1		16
	8 - copper			jag 120	-	1	-14
				E 30			-12
Abnormal	ä 4			50			12
)/23	2			8	Bioreve mal		-10
0ct10/23	0			- 55			
	0ct10/23			Apr4/2			
Viscosity @ 40°C				0	μ 6μ	14µ 21µ	38µ 71µ
Severe	Viscosity @ 40°C				Acid Number		
	55 Severe	*****		(B/HO) 0.96	Base rmal		
Abnormal				Q 0.96			
Base	∯ z 45 Base			e 0.72			
Abnormal	40			Ž	-		
Severe	35 Severe			U.24			
	0ct10/23			Apr4/24	0ct10/23		14/24
0ct10/23	Oct			Ar	00		An
Laboratory Sample No. Lab Number Unique Number Unique Number To discuss this sample report	: 10976685 : IND 2	Receiv Tested Diagno	red : 11 : 12 osed : 16	Apr 2024 2 Apr 2024 Apr 2024 - Ange			TREATMENT AND AVENUE UTICA, NY US 13502 ervice Manage

Contact/Location: Service Manager - ONEUTIKC Page 2 of 2