

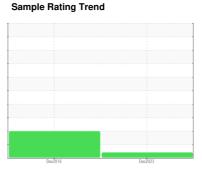
OIL ANALYSIS REPORT

KAESER 2257676 (S/N 1030)

Component

Compressor

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. We were unable to perform a particle count due to a high concentration of particles present in this sample.

Wear

All component wear rates are normal.

Contamination

High concentration of visible dirt/debris 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 Number Client Info KC111957 KCP59084 Sample Date Client Info 18 Dec 2023 13 Dec 2016 Machine Age hrs Client Info 42153 26211 Oil Age hrs Client Info Not Changd Oil Changed Client Info Not Changd Sample Status Mot Changd ABNORMAL WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >10 0 0 Nickel ppm ASTM D5185m >10 0 0 Niker ppm ASTM D5185m >3 <1 0 Silver ppm ASTM D5185m >10 <1 2 Lead ppm ASTM D5185m >10 <1 2 Apper ppm ASTM D5185m >10 <1 0				Dec2016	Dec2023		
Sample Date Client Info 18 Dec 2023 13 Dec 2016	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 42153 26211 Oil Age hrs Client Info 42153 2000 Oil Changed Client Info 42153 2000 Oil Changed Client Info Not Changed ABNORMAL ABNORMAL WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >50 3 2 Chromium ppm ASTM D5185m >10 0 0 Nickel ppm ASTM D5185m >3 0 <1 Sliver ppm ASTM D5185m >3 0 0 Sliver ppm ASTM D5185m >10 0 0 Sliver ppm ASTM D5185m >10 0 0 Aluminum ppm ASTM D5185m >10 0 <1 2 Lead ppm ASTM D5185m >10 0 <1 Copper ppm ASTM D5185m >10 0 <1 Copper ppm ASTM D5185m >10 0 <1 Cardmium ppm ASTM D5185m >10 <1 0 Antimony ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Magnesium ppm ASTM D5185m 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 Magnesium ppm ASTM D5185m 0 10 <1 Magnesium ppm ASTM D5185m 0 10 <	Sample Number		Client Info		KC111957	KCP59084	
Oil Age hrs Client Info 42153 2000	Sample Date		Client Info		18 Dec 2023	13 Dec 2016	
Oil Changed Sample Status	Machine Age	hrs	Client Info		42153	26211	
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 3 2 Chromium ppm ASTM D5185m >10 0 0 Nickel ppm ASTM D5185m >3 0 <1	Oil Age	hrs	Client Info		42153	2000	
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 3 2 Chromium ppm ASTM D5185m >10 0 0 Nickel ppm ASTM D5185m >3 0 <1	Oil Changed		Client Info		Not Changd	Not Changd	
Iron	Sample Status				ABNORMAL	ABNORMAL	
Chromium ppm ASTM D5185m >10 0 0 Nickel ppm ASTM D5185m >3 0 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >3 0 <1 Titanium ppm ASTM D5185m >3 <1 0 Silver ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >10 <1 2 Lead ppm ASTM D5185m >10 0 <1 Copper ppm ASTM D5185m >10 0 <1 Copper ppm ASTM D5185m >10 0 0 Antimony ppm ASTM D5185m >10 0 0 Antimony ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Barium ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 0 10 0 10 Sodium ppm ASTM D5185m 0 10 0 10 FLUID CLEANLINESS method limit/base current history1 history2 FLUID CLEANLINESS method limit/base current history1 history2 Particles >6µm ASTM D7647 >80 AST	Iron	ppm	ASTM D5185m	>50	3	2	
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Silver	Nickel	ppm	ASTM D5185m	>3	0	<1	
Aluminum ppm ASTM D5185m >10 <1 2 Lead ppm ASTM D5185m >10 0 <1	Titanium	ppm	ASTM D5185m	>3	<1	0	
Lead ppm ASTM D5185m >10 0 <1 Copper ppm ASTM D5185m >50 7 5 Tin ppm ASTM D5185m >10 <1	Silver	ppm	ASTM D5185m	>2	0	0	
Copper ppm ASTM D5185m >50 7 5 Tin ppm ASTM D5185m >10 <1	Aluminum	ppm	ASTM D5185m	>10	<1	2	
Tin	Lead	ppm	ASTM D5185m	>10	0	<1	
Tin ppm ASTM D5185m >10 <1 0 Antimony ppm ASTM D5185m 0 0 0 Antimony ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 <1 Barium ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 0 0 0 Calcium ppm ASTM D5185m 0 0 0 Mangesium ppm ASTM D5185m 0 10 <1 Phosphorus ppm ASTM D5185m 0 10 <1 Phosphorus ppm ASTM D5185m 0 10 <1 Phosphorus ppm ASTM D5185m 0 10 <1 Silicon ppm ASTM D5185m 0 18 62 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >20 3 4 Potassium ppm ASTM D5185m >20 3 4 FLUID CLEANLINESS method limit/base current history1 history2 FParticles >4µm ASTM D647 >500 216 120 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >80	Copper	ppm	ASTM D5185m	>50	7	5	
Vanadium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 <1	Tin	ppm	ASTM D5185m	>10	<1	0	
Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 <1	Antimony	ppm	ASTM D5185m			<1	
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 <1	Vanadium	ppm	ASTM D5185m		0	0	
Boron ppm ASTM D5185m 0 0 1 7 Barium ppm ASTM D5185m 90 1 7 7 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 100 39 49 Calcium ppm ASTM D5185m 0 10 <-1 Phosphorus ppm ASTM D5185m 0 10 <-1 Zinc ppm ASTM D5185m 0 18 62 Zinc ppm ASTM D5185m 0 18 62 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >20 3 4 Potassium ppm ASTM D5185m >20 3 4 Water 96 ASTM D6304 >0.05 0.021 0.012 ppm Water ppm ASTM D6304 >500 216 120 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 4154 Particles >21μm ASTM D7647 >80 Δ 2262 Particles >21μm ASTM D7647 >4 Δ 20 Particles >21μm ASTM D7647 >4 Δ 20 Particles >38μm ASTM D7647 >4 Δ 20 Particles >38μm ASTM D7647 >4 Δ 20 Particles >71μm ASTM D7647 >3 Δ 20 Particles >71μm ASTM D7647 >4 Δ 20 Particles >71μm ASTM D7647 >3 Δ 18/16 FLUID DEGRADATION method limit/base current history1 history2	Cadmium	ppm	ASTM D5185m		0	0	
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 0 0 0 0 0 0 0 0 0	Boron	ppm	ASTM D5185m	0	0	<1	
Manganese ppm ASTM D5185m <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 </td <td>Barium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>90</td> <td>1</td> <td>7</td> <td></td>	Barium	ppm	ASTM D5185m	90	1	7	
Magnesium ppm ASTM D5185m 100 39 49 Calcium ppm ASTM D5185m 0 10 -1 Phosphorus ppm ASTM D5185m 0 4 2 Zinc ppm ASTM D5185m 0 18 62 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >25 4 3 Potassium ppm ASTM D5185m >20 3 4 Potassium ppm ASTM D5185m >20 3 4 Water % ASTM D5185m >20 3 4 Potassium ppm ASTM D5185m >20 3 4 Potassium ppm ASTM D6304 >0.05 0	Molybdenum	ppm	ASTM D5185m	0	0	0	
Calcium ppm ASTM D5185m 0 10 <1 Phosphorus ppm ASTM D5185m 0 4 2 Zinc ppm ASTM D5185m 0 18 62 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >20 3 4 Potassium ppm ASTM D5185m >20 3 4 Water % ASTM D5185m >20 3 4 Water % ASTM D5185m >20 3 4 Potassium ppm ASTM D6304 >0.05 0.021 0.012 Potassium ppm ASTM D6304 >500 216 120 FLUID CLEANLINESS method limit/base current </td <td>Manganese</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <td><1</td> <td><1</td> <td></td>	Manganese	ppm	ASTM D5185m		<1	<1	
Phosphorus ppm ASTM D5185m 0 4 2 Zinc ppm ASTM D5185m 0 18 62 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >20 3 4 Potassium ppm ASTM D5185m >20 3 4 Water % ASTM D6304 >0.05 0.021 0.012 ppm Water ppm ASTM D6304 >500 216 120 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >80 4154 Particles >21µm ASTM D7647 >80 4 385 Particles >21µm ASTM D7647 >4	Magnesium	ppm	ASTM D5185m	100	39	49	
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Silicon ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m 11 15 Potassium ppm ASTM D5185m >20 3 4 Water % ASTM D6304 >0.05 0.021 0.012 ppm Water ppm ASTM D6304 >500 216 120 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 4154 Particles >6μm ASTM D7647 >1300 △ 2262 Particles >14μm ASTM D7647 >80 △ 385 Particles >21μm ASTM D7647 >20 △ 130 Particles >38μm ASTM D7647 >4 △ 20 Particles >71μm ASTM D7647 >3 △ 20 Particles >71μm ASTM D7647 >3 △ 18/16 FLUID DEGRADATION method limit/base current history1 history2	Zinc	ppm	ASTM D5185m	0	18	62	
Sodium ppm ASTM D5185m 11 15 Potassium ppm ASTM D5185m >20 3 4 Water % ASTM D6304 >0.05 0.021 0.012 ppm Water ppm ASTM D6304 >500 216 120 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 4154 Particles >6μm ASTM D7647 >1300 4262 Particles >14μm ASTM D7647 >80 4385 Particles >21μm ASTM D7647 >20 4130 Particles >71μm ASTM D7647 >3 420 Particles >71μm ASTM D7647 >3 418/16 FLUID DEGRADATION method limit/base current history1 history2	CONTAMINANTS		method	limit/base	current	history1	history2
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Particles >4μm ASTM D7647 4154 Particles >6μm ASTM D7647 >1300 ≥ 2262 Particles >14μm ASTM D7647 >80 △ 385 Particles >21μm ASTM D7647 >20 △ 130 Particles >38μm ASTM D7647 >4 △ 20 Particles >71μm ASTM D7647 >3 2 Oil Cleanliness ISO 4406 (c) >17/13 △ 18/16 FLUID DEGRADATION method limit/base current history1 history2	ppm Water	ppm	ASTM D6304	>500	216	120	
Particles >6μm ASTM D7647 >1300 Δ 2262 Particles >14μm ASTM D7647 >80 Δ 385 Particles >21μm ASTM D7647 >20 Δ 130 Particles >38μm ASTM D7647 >4 Δ 20 Particles >71μm ASTM D7647 >3 2 Oil Cleanliness ISO 4406 (c) >17/13 Δ 18/16 FLUID DEGRADATION method limit/base current history1 history2	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >14μm ASTM D7647 >80 Δ 385 Particles >21μm ASTM D7647 >20 Δ 130 Particles >38μm ASTM D7647 >4 Δ 20 Particles >71μm ASTM D7647 >3 2 Oil Cleanliness ISO 4406 (c) >17/13 Δ 18/16 FLUID DEGRADATION method limit/base current history1 history2	Particles >4µm		ASTM D7647			4154	
Particles >21μm ASTM D7647 >20 ▲ 130 Particles >38μm ASTM D7647 >4 ▲ 20 Particles >71μm ASTM D7647 >3 2 Oil Cleanliness ISO 4406 (c) >17/13 ▲ 18/16 FLUID DEGRADATION method limit/base current history1 history2	Particles >6µm		ASTM D7647	>1300		<u>^</u> 2262	
Particles >38μm ASTM D7647 >4 ▲ 20 Particles >71μm ASTM D7647 >3 2 Oil Cleanliness ISO 4406 (c) >17/13 ▲ 18/16 FLUID DEGRADATION method limit/base current history1 history2	Particles >14µm		ASTM D7647	>80		△ 385	
Particles >71μm ASTM D7647 >3 2 Oil Cleanliness ISO 4406 (c) >17/13 ▲ 18/16 FLUID DEGRADATION method limit/base current history1 history2	Particles >21µm		ASTM D7647	>20		△ 130	
Oil Cleanliness ISO 4406 (c) >17/13 ▲ 18/16 FLUID DEGRADATION method limit/base current history1 history2	Particles >38µm		ASTM D7647	>4		2 0	
FLUID DEGRADATION method limit/base current history1 history2	Particles >71µm		ASTM D7647	>3		2	
	Oil Cleanliness		ISO 4406 (c)	>17/13		▲ 18/16	
Acid Number (AN) mg KOH/g ASTM D8045 1.0 0.31 0.293	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	0.31	0.293	



OIL ANALYSIS REPORT







Certificate L2367

Laboratory Sample No. Lab Number Unique Number

. 06056741 : 10822690

: KC111957 Test Package : IND 2

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 10 Jan 2024 Recieved Diagnosed : 11 Jan 2024 Diagnostician : Doug Bogart

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)

PAR-KUT INTERNATIONAL 40961 PRODUCTION DR

HARRISON TOWNSHIP, MI US 48045

Contact:

T:

F: