

OIL ANALYSIS REPORT

SAMPLE INFORMATION

ISO

7497073 (S/N 1293)

Component

Compressor

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

DIAGNOSIS

Recommendation

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.

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.

Feb2022	Mar2023	Mar2024

WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >50 <1 <1 <1 Chromium ppm ASTM D5185m >10 0 0 0 Nickel ppm ASTM D5185m >3 0 <1 0 Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >10 0 <1 0 Lead ppm ASTM D5185m >10 0 <1 0 Copper ppm ASTM D5185m >10 0 0 0 Tin ppm ASTM D5185m >10 0 0 0 Vanadium ppm ASTM D5185m <1 0 0 0 Vanadium ppm ASTM D5185m <1 0 0 <t< th=""><th></th><th></th><th></th><th>IIIIII Dasc</th><th></th><th>1113131 y 1</th><th>Thotory 2</th></t<>				IIIIII Dasc		1113131 y 1	Thotory 2
Machine Age Oil Age hrs hrs Client Info Client Info Oil Changed 15848 A000 11422 O 7030 7030 O 7030 Oil Changed Sample Status Client Info Client Info Damped 4000 ABNORMAL ABNORMAL ABNORMAL ABNORMAL							
Oil Age hrs Client Info 4000 0 7030 Oil Changed Client Info Changed N/A Changed Sample Status ABNORMAL	•						
Oil Changed Sample Status Client Info Changed ABNORMAL ABNORM							
Sample Status	-	hrs					
WEAR METALS			Client Info		_		
Iron	Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
Chromium ppm ASTM D5185m >10 0 0 0 Nickel ppm ASTM D5185m >3 0 <1 0 Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >10 0 <1 0 Lead ppm ASTM D5185m >10 0 0 0 Copper ppm ASTM D5185m >50 6 11 19 Tin ppm ASTM D5185m >10 0 0 0 Antimony ppm ASTM D5185m 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Boron ppm ASTM D5185m 0 0 0 0 <tr< th=""><th>WEAR METALS</th><th></th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></tr<>	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >3 0 <1	Iron	ppm	ASTM D5185m	>50	<1	<1	<1
Titanium	Chromium	ppm	ASTM D5185m	>10	0	0	0
Silver	Nickel	ppm	ASTM D5185m	>3	0	<1	0
Aluminum ppm ASTM D5185m >10 0 <1	Titanium	ppm	ASTM D5185m	>3	0	0	0
Lead ppm ASTM D5185m >10 0 0 0 Copper ppm ASTM D5185m >50 6 11 19 Tin ppm ASTM D5185m >10 0 0 0 Antimony ppm ASTM D5185m 0 Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 0 0 <1	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >50 6 11 19 Tin ppm ASTM D5185m >10 0 0 0 Antimony ppm ASTM D5185m 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 0 0 <1 Barium ppm ASTM D5185m 0 0 0 <1 Barium ppm ASTM D5185m 0 0 0 0 Maloybdenum ppm ASTM D5185m 0 0 0 0 Maloyanesium ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 1 0 <t< th=""><th>Aluminum</th><th>ppm</th><th>ASTM D5185m</th><th>>10</th><th>0</th><th><1</th><th>0</th></t<>	Aluminum	ppm	ASTM D5185m	>10	0	<1	0
Tin ppm ASTM D5185m >10 0 0 0 Antimony ppm ASTM D5185m 0 Vanadium ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 <1	Lead	ppm	ASTM D5185m	>10	0	0	0
Antimony ppm ASTM D5185m 0 Vanadium ppm ASTM D5185m <1	Copper	ppm	ASTM D5185m	>50	6	11	19
Vanadium ppm ASTM D5185m <1	Tin	ppm	ASTM D5185m	>10	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 90 15 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 100 62 20 8 Calcium ppm ASTM D5185m 0 1 0 0 Phosphorus ppm ASTM D5185m 0 2 2 7 Zinc ppm ASTM D5185m 0 8 13 12 Sulfur ppm ASTM D5185m 23500 21679 23110 13345 CONTAMINANTS method limit/base current history1 hist	Antimony	ppm	ASTM D5185m				0
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 <1 Barium ppm ASTM D5185m 90 15 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 100 62 20 8 Calcium ppm ASTM D5185m 0 1 0 0 Phosphorus ppm ASTM D5185m 0 2 2 2 7 Zinc ppm ASTM D5185m 0 8 13 12 Sulfur ppm ASTM D5185m 23500 21679 23110 13345 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25	Vanadium	ppm	ASTM D5185m		<1	0	0
Boron ppm ASTM D5185m 0 0 0 <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 90 15 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 100 62 20 8 Calcium ppm ASTM D5185m 0 1 0 0 Phosphorus ppm ASTM D5185m 0 2 2 7 Zinc ppm ASTM D5185m 0 8 13 12 Sulfur ppm ASTM D5185m 23500 21679 23110 13345 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 <1 <1 <1 Sodium ppm ASTM D5185m >20 14 3 0 Water % ASTM D6304 >0.05 0.	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 100 62 20 8 Calcium ppm ASTM D5185m 0 1 0 0 Phosphorus ppm ASTM D5185m 0 2 2 7 Zinc ppm ASTM D5185m 0 8 13 12 Sulfur ppm ASTM D5185m 23500 21679 23110 13345 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 <1	Boron	ppm	ASTM D5185m	0	0	0	<1
Manganese ppm ASTM D5185m 0 0 0 Magnesium ppm ASTM D5185m 100 62 20 8 Calcium ppm ASTM D5185m 0 1 0 0 Phosphorus ppm ASTM D5185m 0 2 2 7 Zinc ppm ASTM D5185m 0 8 13 12 Sulfur ppm ASTM D5185m 23500 21679 23110 13345 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 <1	Barium	ppm	ASTM D5185m	90	15	0	0
Magnesium ppm ASTM D5185m 100 62 20 8 Calcium ppm ASTM D5185m 0 1 0 0 Phosphorus ppm ASTM D5185m 0 2 2 7 Zinc ppm ASTM D5185m 0 8 13 12 Sulfur ppm ASTM D5185m 23500 21679 23110 13345 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 <1	Molybdenum	ppm	ASTM D5185m	0	0	0	0
Calcium ppm ASTM D5185m 0 1 0 0 Phosphorus ppm ASTM D5185m 0 2 2 7 Zinc ppm ASTM D5185m 0 8 13 12 Sulfur ppm ASTM D5185m 23500 21679 23110 13345 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 <1 <1 <1 Sodium ppm ASTM D5185m >25 <1 <1 <1 Sodium ppm ASTM D5185m >20 14 3 0 Water % ASTM D6304 >0.05 0.011 0.008 0.006 ppm Water ppm ASTM D6304 >500 117 88.6 61.1 FLUID CLEANLINESS method limit/base current history1 history1 Particles >6µm ASTM D7647 >1300 </th <th>Manganese</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>0</th> <th>0</th> <th>0</th>	Manganese	ppm	ASTM D5185m		0	0	0
Phosphorus ppm ASTM D5185m 0 2 2 7 Zinc ppm ASTM D5185m 0 8 13 12 Sulfur ppm ASTM D5185m 23500 21679 23110 13345 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 <1 <1 <1 Sodium ppm ASTM D5185m >25 <1 <1 <1 Sodium ppm ASTM D5185m >20 14 3 0 Potassium ppm ASTM D6304 >0.05 0.011 0.008 0.006 ppm Water % ASTM D6304 >500 117 88.6 61.1 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4μm ASTM D7647 >1300 5027 9087 13092	Magnesium	ppm	ASTM D5185m	100	62	20	8
Zinc ppm ASTM D5185m 0 8 13 12 Sulfur ppm ASTM D5185m 23500 21679 23110 13345 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 <1 <1 <1 Sodium ppm ASTM D5185m 33 8 2 Potassium ppm ASTM D5185m >20 14 3 0 Water % ASTM D6304 >0.05 0.011 0.008 0.006 ppm Water ppm ASTM D6304 >500 117 88.6 61.1 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4μm ASTM D7647 12182 22521 32305 Particles >6μm ASTM D7647 >1300 5027 9087 13092	Calcium	ppm	ASTM D5185m	0	1	0	0
Sulfur ppm ASTM D5185m 23500 21679 23110 13345 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 <1 <1 Sodium ppm ASTM D5185m >25 <1 <1 <1 Sodium ppm ASTM D5185m >20 14 3 0 Vater % ASTM D6304 >0.05 0.011 0.008 0.006 ppm Water ppm ASTM D6304 >500 117 88.6 61.1 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4μm ASTM D7647 12182 22521 32305 Particles >6μm ASTM D7647 >1300 5027 9087 13092	Phosphorus	ppm	ASTM D5185m	0	2	2	7
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 <1 <1 Sodium ppm ASTM D5185m 33 8 2 Potassium ppm ASTM D5185m >20 14 3 0 Water % ASTM D6304 >0.05 0.011 0.008 0.006 ppm Water ppm ASTM D6304 >500 117 88.6 61.1 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4μm ASTM D7647 12182 22521 32305 Particles >6μm ASTM D7647 >1300 5027 9087 13092	Zinc	ppm	ASTM D5185m	0	8	13	12
Silicon ppm ASTM D5185m >25 <1	Sulfur	ppm	ASTM D5185m	23500	21679	23110	13345
Sodium ppm ASTM D5185m 33 8 2 Potassium ppm ASTM D5185m >20 14 3 0 Water % ASTM D6304 >0.05 0.011 0.008 0.006 ppm Water ppm ASTM D6304 >500 117 88.6 61.1 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4μm ASTM D7647 12182 22521 32305 Particles >6μm ASTM D7647 >1300 5027 9087 13092	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 14 3 0 Water % ASTM D6304 >0.05 0.011 0.008 0.006 ppm Water ppm ASTM D6304 >500 117 88.6 61.1 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4μm ASTM D7647 12182 22521 32305 Particles >6μm ASTM D7647 >1300 5027 9087 13092	Silicon	ppm	ASTM D5185m	>25	<1	<1	<1
	Sodium	ppm	ASTM D5185m		33	8	2
ppm Water ppm ASTM D6304 >500 117 88.6 61.1 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4μm ASTM D7647 12182 22521 32305 Particles >6μm ASTM D7647 >1300 5027 9087 13092	Potassium	ppm	ASTM D5185m	>20	14	3	0
FLUID CLEANLINESS method limit/base current history1 history1 Particles >4μm ASTM D7647 12182 22521 32305 Particles >6μm ASTM D7647 >1300 ▲ 5027 ▲ 9087 ▲ 13092	Water	%	ASTM D6304	>0.05	0.011	0.008	0.006
Particles >4μm ASTM D7647 12182 22521 32305 Particles >6μm ASTM D7647 >1300 ▲ 5027 ▲ 9087 ▲ 13092	ppm Water	ppm	ASTM D6304	>500	117	88.6	61.1
Particles >6μm ASTM D7647 >1300 ▲ 5027 ▲ 9087 ▲ 13092	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
	Particles >4µm		ASTM D7647		12182	22521	32305
Particles >14μm ASTM D7647 >80 Δ 325 Δ 83 Δ 178	Particles >6µm		ASTM D7647	>1300	<u></u> 5027	△ 9087	▲ 13092
	Particles >14µm		ASTM D7647	>80	325	▲ 83	▲ 178
Particles >21μm ASTM D7647 >20 Δ 68 4 13	Particles >21µm		ASTM D7647	>20	<u>▲</u> 68	4	13
Particles >38μm ASTM D7647 >4 1 1	Particles >38µm		ASTM D7647	>4	1	1	1
Particles >71μm ASTM D7647 >3 0 1	Particles >71µm		ASTM D7647	>3	0	1	0
Oil Cleanliness ISO 4406 (c) >/17/13	Oil Cleanliness		ISO 4406 (c)	>/17/13	2 1/20/16	<u>22/20/14</u>	<u></u> 21/15
FLUID DEGRADATION method limit/base current history1 history	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Acid Number (AN) mg KOH/g ASTM D8045 1.0 0.46 0.35 0.36	Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	0.46	0.35	0.36



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