

OIL ANALYSIS REPORT

Sample Rating Trend

ISO

KAESER 9017137

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 moderate amount of particulates present in the oil.

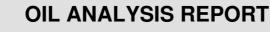
Fluid Condition

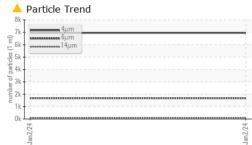
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

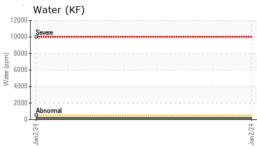
Sample Number Client Info KCPA011721 ··· ··· Sample Date Client Info 02 Jan 2024 ··· ··· Machine Age hrs Client Info 0 ··· ··· Ol Age hrs Client Info N/A ··· ··· Ol Changed Client Info N/A ··· ··· Sample Status method Imit/base current history1 history2 Iron ppm ASTM 05185m >50 1 ··· ··· Chromium ppm ASTM 05185m >3 0 ··· ··· Silver ppm ASTM 05185m >3 10 ··· ··· Aluminum ppm ASTM 05185m >10 1 ··· ··· Silver ppm ASTM 05185m >10 1 ··· ··· Auminum ppm ASTM 05185m 0 4 ···< ··· Auminum ppm	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 3477 Oil Age hrs Client Info 0 Sample Status Client Info N/A WEAR METALS method limit/base current history1 history2 Iron ppm ASTM 05185m >50 1 Nickel ppm ASTM 05185m >10 <1	Sample Number		Client Info		KCPA011721		
Machine Age hrs Client Info 3477 Oil Age hrs Client Info 0 Sample Status Client Info N/A WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM 05185m >50 1 Nickel ppm ASTM 05185m >3 0 Silver ppm ASTM 05185m >3 <1			Client Info		02 Jan 2024		
Oil Age Ins Client Info 0 OIL Changed Client Info N/A WEAR METALS method Imitibase current history1 history2 Iron ppm ASTM D5185m >50 1 Chromium ppm ASTM D5185m >3 0 Nickel ppm ASTM D5185m >3 <1	•	hrs	Client Info		3477		
Oil Changed Client Info N/A Sample Status Imit/base current history1 history2 Iron ppm ASTM D5185n >50 1 Nickel ppm ASTM D5185n >30 0 Titanium ppm ASTM D5185n >33 <1	Ũ				-		
Sample Status ATTENTION WEAR METALS method limit/base current history1 history2 tron ppm ASTM D5185m >50 1 Chromium ppm ASTM D5185m >3 0 Nickel ppm ASTM D5185m >3 0 Silver ppm ASTM D5185m >10 2 Auminum ppm ASTM D5185m >10 0 Copper ppm ASTM D5185m >10 0 Vanadium ppm ASTM D5185m 0 0 ADDITVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 ADDITVES method limit/base current history1 history2	-						
WEAR METALS method limit/base current history1 history2 Knomium ppm ASTM D5185m >50 1 Nickel ppm ASTM D5185m >3 0 Nickel ppm ASTM D5185m >3 0 Silver ppm ASTM D5185m >2 0 Lead ppm ASTM D5185m >10 2 Copper ppm ASTM D5185m >10 0 Vanadium ppm ASTM D5185m >10 0 ASTM D5185m 0 0 ASTM D5185m 0 0 ASTM D5185m 0 0 ASTM D5185m 0 0	-						
Iron ppm ASTM D5185m >50 1 Chromium ppm ASTM D5185m >10 <1							
Ppm ASTM D5185m >10 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >3 0 Titanium ppm ASTM D5185m >3 <1	Iron	ppm	ASTM D5185m		-		
Titanium ppm ASTM D5185m >3 <1 Silver ppm ASTM D5185m >2 0 Aluminum ppm ASTM D5185m >10 2 Lead ppm ASTM D5185m >10 0 Copper ppm ASTM D5185m >10 <1	Chromium	ppm	ASTM D5185m	>10	<1		
Silver ppm ASTM D5185m >2 0 Aluminum ppm ASTM D5185m >10 2 Lead ppm ASTM D5185m >10 0 Copper ppm ASTM D5185m >10 <1	Nickel	ppm	ASTM D5185m	>3	0		
Aluminum ppm ASTM D5185m >10 2 Lead ppm ASTM D5185m >10 0 Copper ppm ASTM D5185m >50 4 Vanadium ppm ASTM D5185m 0 Vanadium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 0 0 Magnese ppm ASTM D5185m 0 0 Magnesium ppm ASTM D5185m 0 24 Zinc ppm ASTM D5185m 23500 20022 Sulfur ppm ASTM D5185m 225 <1	Titanium	ppm	ASTM D5185m	>3	<1		
Lead ppm ASTM D5185m >10 0 Copper ppm ASTM D5185m >50 4 Vanadium ppm ASTM D5185m >10 <1	Silver	ppm	ASTM D5185m	>2	0		
Copper ppm ASTM D5185m >50 4 Tin ppm ASTM D5185m >10 <1	Aluminum	ppm	ASTM D5185m	>10	2		
Tin ppm ASTM D5185m >10 <1 Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 Magnese ppm ASTM D5185m 0 0 Magnesium ppm ASTM D5185m 0 44 Calcium ppm ASTM D5185m 0 4 Calcium ppm ASTM D5185m 0 0 Sulfur ppm ASTM D5185m 0 0 Sulfur ppm ASTM D5185m 25 <1	Lead	ppm	ASTM D5185m	>10	0		
Tin ppm ASTM D5185m >10 <1 Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 0 0 Manganese ppm ASTM D5185m 0 44 Calcium ppm ASTM D5185m 0 24 Zinc ppm ASTM D5185m 0 0 Sulfur ppm ASTM D5185m 23500 20022 Sulfur ppm ASTM D5185m 25 <1	Copper	ppm	ASTM D5185m	>50	4		
Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 Barium ppm ASTM D5185m 0 0 Maganese ppm ASTM D5185m 0 0 Magnesium ppm ASTM D5185m 100 77 Calcium ppm ASTM D5185m 0 4 Calcium ppm ASTM D5185m 0 24 Sulfur ppm ASTM D5185m 0 0 Sulfur ppm ASTM D5185m 23500 20022 Solicon ppm ASTM D5185m >25 <1	••		ASTM D5185m	>10	<1		
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Boron ppm ASTM D5185m 0 0 Barium ppm ASTM D5185m 90 43 Molybdenum ppm ASTM D5185m 0 0 Manganese ppm ASTM D5185m 100 77 Calcium ppm ASTM D5185m 0 4 Calcium ppm ASTM D5185m 0 24 Zinc ppm ASTM D5185m 0 0 Sulfur ppm ASTM D5185m 23500 20022 Sodium ppm ASTM D5185m 21 Potassium ppm ASTM D5185m >20 34 Water % ASTM D6304 >0.05 0.018 Particles >4µm ASTM D7647 6954	Cadmium		ASTM D5185m		0		
Barium ppm ASTM D5185m 90 43 Molybdenum ppm ASTM D5185m 0 0 Manganese ppm ASTM D5185m 0 0 Magnesium ppm ASTM D5185m 100 77 Calcium ppm ASTM D5185m 0 4 Calcium ppm ASTM D5185m 0 24 Zinc ppm ASTM D5185m 0 0 Sulfur ppm ASTM D5185m 23500 20022 Sodium ppm ASTM D5185m 225 <1	ADDITIVES		method	limit/base	current	history1	history2
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Marganese ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 100 77 Calcium ppm ASTM D5185m 0 4 Calcium ppm ASTM D5185m 0 24 Zinc ppm ASTM D5185m 0 0 Sulfur ppm ASTM D5185m 23500 20022 Sulfur ppm ASTM D5185m 23500 20022 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1	Barium	ppm	ASTM D5185m	90	43		
Magnesium ppm ASTM D5185m 100 77 Calcium ppm ASTM D5185m 0 4 Phosphorus ppm ASTM D5185m 0 0 Zinc ppm ASTM D5185m 0 0 Sulfur ppm ASTM D5185m 23500 20022 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1	Molybdenum	ppm	ASTM D5185m	0	0		
Calcium ppm ASTM D5185m 0 4 Phosphorus ppm ASTM D5185m 0 0 Zinc ppm ASTM D5185m 0 0 Sulfur ppm ASTM D5185m 23500 20022 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1	Manganese	ppm	ASTM D5185m		0		
Phosphorus ppm ASTM D5185m 0 24 Zinc ppm ASTM D5185m 0 0 Sulfur ppm ASTM D5185m 23500 20022 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1	Magnesium	ppm	ASTM D5185m	100	77		
Phosphorus ppm ASTM D5185m 0 24 Zinc ppm ASTM D5185m 0 0 Sulfur ppm ASTM D5185m 23500 20022 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1	Calcium	ppm	ASTM D5185m	0	4		
Zinc ppm ASTM D5185m 0 0 Sulfur ppm ASTM D5185m 23500 20022 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1	Phosphorus		ASTM D5185m	0	24		
Sulfur ppm ASTM D5185m 23500 20022 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1			ASTM D5185m	0	0		
Silicon ppm ASTM D5185m >25 <1 Sodium ppm ASTM D5185m 21 Potassium ppm ASTM D5185m >20 34 Water % ASTM D6304 >0.05 0.018 Water ppm ASTM D6304 >500 180 ppm Water ppm ASTM D7647 6954 Particles >4µm ASTM D7647 >1300 1681 Particles >6µm ASTM D7647 >80 99 Particles >1µm ASTM D7647 >20 24 Particles >21µm ASTM D7647 >3 0 Particles >38µm ASTM D7647 >3 0 Particles >71µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 20/18/14	Sulfur				20022		
Sodium ppm ASTM D5185m 21 Potassium ppm ASTM D5185m >20 34 Water % ASTM D6304 >0.05 0.018 ppm Water ppm ASTM D6304 >500 180 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 6954 Particles >6µm ASTM D7647 >1300 1681 Particles >14µm ASTM D7647 >20 24 Particles >21µm ASTM D7647 >20 24 Particles >38µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 20/18/14 FLUID DEGRADATION method limit/base current history1 history2	CONTAMINANTS	;	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 34 Water % ASTM D6304 >0.05 0.018 ppm Water ppm ASTM D6304 >500 180 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 6954 Particles >6µm ASTM D7647 >1300 1681 Particles >6µm ASTM D7647 >80 99 Particles >14µm ASTM D7647 >20 24 Particles >21µm ASTM D7647 >3 0 Particles >38µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 20/18/14 FLUID DEGRADATION method limit/base current history1 history2	Silicon	ppm	ASTM D5185m	>25	<1		
Water % ASTM D6304 >0.05 0.018 ppm Water ppm ASTM D6304 >500 180 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 6954 Particles >6µm ASTM D7647 >1300 1681 Particles >14µm ASTM D7647 >80 99 Particles >14µm ASTM D7647 >20 24 Particles >21µm ASTM D7647 >4 1 Particles >38µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 20/18/14 FLUID DEGRADATION method limit/base current history1 history2	Sodium	ppm	ASTM D5185m		21		
ppm Water ppm ASTM D6304 >500 180 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 6954 Particles >6µm ASTM D7647 >1300 1681 Particles >6µm ASTM D7647 >80 99 Particles >14µm ASTM D7647 >20 24 Particles >21µm ASTM D7647 >4 1 Particles >38µm ASTM D7647 >4 1 Particles >71µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) /17/13 20/18/14 FLUID DEGRADATION method limit/base current history1 history2	Potassium	ppm	ASTM D5185m	>20	34		
FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 6954 Particles >6µm ASTM D7647 >1300 1681 Particles >6µm ASTM D7647 >80 99 Particles >14µm ASTM D7647 >80 99 Particles >21µm ASTM D7647 >20 24 Particles >38µm ASTM D7647 >4 1 Particles >38µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 20/18/14 FLUID DEGRADATION method limit/base current history1 history2	Water	%	ASTM D6304	>0.05	0.018		
Particles >4µm ASTM D7647 6954 Particles >6µm ASTM D7647 >1300 1681 Particles >14µm ASTM D7647 >80 99 Particles >14µm ASTM D7647 >20 24 Particles >21µm ASTM D7647 >20 24 Particles >38µm ASTM D7647 >4 1 Particles >71µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 20/18/14 FLUID DEGRADATION method limit/base current history1 history2	ppm Water	ppm	ASTM D6304	>500	180		
Particles >6µm ASTM D7647 >1300 ▲ 1681 Particles >14µm ASTM D7647 >80 ▲ 99 Particles >21µm ASTM D7647 >20 ▲ 24 Particles >21µm ASTM D7647 >20 ▲ 24 Particles >38µm ASTM D7647 >4 1 Particles >71µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 ▲ 20/18/14 FLUID DEGRADATION method limit/base current history1 history2	FLUID CLEANLIN	IESS	method	limit/base	current	history1	history2
Particles >14μm ASTM D7647 >80 ▲ 99 Particles >21μm ASTM D7647 >20 ▲ 24 Particles >38μm ASTM D7647 >4 1 Particles >38μm ASTM D7647 >4 1 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 ▲ 20/18/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >4µm		ASTM D7647		6954		
Particles >21μm ASTM D7647 >20 24 Particles >38μm ASTM D7647 >4 1 Particles >37μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 20/18/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >6µm		ASTM D7647	>1300	1681		
Particles >38μm ASTM D7647 >4 1 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 20/18/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >14µm		ASTM D7647	>80	9 9		
Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 ▲ 20/18/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >21µm		ASTM D7647	>20	A 24		
Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 ▲ 20/18/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >38µm		ASTM D7647	>4	1		
Oil Cleanliness ISO 4406 (c) >/17/13 ▲ 20/18/14 FLUID DEGRADATION method limit/base current history1 history2			ASTM D7647	>3	0		
Acid Number (AN) mg KOH/g ASTM D8045 1.0 0.28	FLUID DEGRADA		method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	0.28		

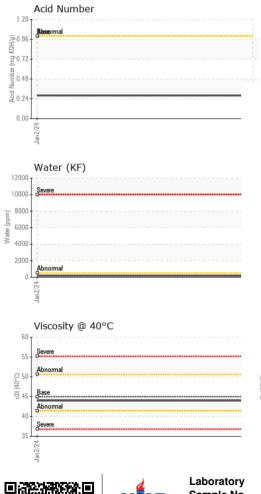


Built for a lifetime."









VISUAL		method	limit/base	current	history1	histor
White Metal	scalar	*Visual	NONE	NONE		
Yellow Metal	scalar	*Visual	NONE	NONE		
Precipitate	scalar	*Visual	NONE	NONE		
Silt	scalar	*Visual	NONE	NONE		
Debris	scalar	*Visual	NONE	NONE		
Sand/Dirt	scalar	*Visual	NONE	NONE		
Appearance	scalar	*Visual	NORML	NORML		
Odor	scalar	*Visual	NORML	NORML		
Emulsified Water	scalar	*Visual	>0.05	NEG		
Free Water	scalar	*Visual		NEG		
FLUID PROPERTI	ES	method	limit/base	current	history1	histor
Visc @ 40°C	cSt	ASTM D445	45	44.0		
SAMPLE IMAGES		method	limit/base	current	history1	histor
Color					no image	no imag
Bottom					no image	no imag
GRAPHS			-			1
Ferrous Alloys				Particle Count	:	
10 8			491,520			
E 6			122,880	1		
4			30,720	+		
2 -			7,680			
0 124				1		
Jan2/24			Jan2/24 (per 1 ml)			
Non-ferrous Metals			·문 480		`	
10 T			of ba			
8 - copper			jag 120	1		
E 6			30	-	1	
4					1	
2				Berme mal		
Jan2/24			Jan 2/24			/
Jan			E C			
Viscosity @ 40°C				Acid Number	14µ 21µ	38µ
60 Severe						
55 Severe			(B)HO 9.96 BU 0.72 bu 0.72 bu 0.74 bu 0.74 bu 0.24 V 0.00	Basermal		
9 30			Ë 0.72			
Automa		******	- g 0.48	+		
40 - Severe			Pg 0.24	-		
35			0.00 V 24			
Jan2/24			Jan2/24	Jan 2/24		
)1 Madia ecieved	d :11.	iry, NC 27513 Jan 2024 Jan 2024	3		ARGROVE IARGROVI LANHAM

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)

Certificate L2367