

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

KAESER 8240528

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

The amount and size of particulates present in the system are acceptable. There is no indication of any contamination 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 KC130364 KC05948042 Sample Date Client Info 28 Jun 2024 23 Aug 2023 Machine Age hrs Client Info 3156 4512 Oil Age hrs Client Info Changed NCRMAL Oil Changed Client Info Changed NCRMAL ABNORMAL Sample Status method Imit/base current history1 history2 Iron ppm ASTM 05185m >50 0 <1 Nickel ppm ASTM 05185m >3 0 0 Nickel ppm ASTM 05185m >2 0 0 Aluminum ppm ASTM 05185m >10 0 0 Capper ppm ASTM 05185m >50 6 9 Chromium ppm ASTM 05185m 0 0 Capper	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Date Client Info 28 Jun 2024 23 Aug 2023 Machine Age hrs Client Info 8156 4512 Oil Age hrs Client Info 3644 0 Oil Changed Client Info Shed4 0 Sample Status Image NORMAL ABNORMAL WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >50 0 <1 Nickel ppm ASTM D5185m >30 0 Nickel ppm ASTM D5185m >10 0 0 Silver ppm ASTM D5185m >10 0 0 Copper ppm ASTM D5185m >10 0 0 Cadmium ppm ASTM D5185m >10 0 0 Cadmiu	Sample Number		Client Info		KC130364	KC05948042	
Oil Age hrs Client Info 3644 0 Oil Changed Client Info Changed N/A Sample Status Imit/base current history1 history1 WEAR METALS method limit/base current history1 Chromium ppm ASTM D5185m >50 0 <1 Nickel ppm ASTM D5185m >30 0 0 Nickel ppm ASTM D5185m >3 0 0 Silver ppm ASTM D5185m >10 0 0 Lead ppm ASTM D5185m >10 0 0 Copper ppm ASTM D5185m >10 0 0 Cadmium ppm ASTM D5185m >10 0 0 Soron ppm ASTM D5185m 0 0 <t< th=""><th>,</th><th></th><th>Client Info</th><th></th><th></th><th>23 Aug 2023</th><th></th></t<>	,		Client Info			23 Aug 2023	
Oil Changed Sample Status Client Info Changed NORMAL N/A WEAR METALS method limi/base current History1 History2 Iron ppm ASTM D5185m >50 0 <11 Chromium ppm ASTM D5185m >10 0 0 Nickel ppm ASTM D5185m >3 0 0 Silver ppm ASTM D5185m >3 0 0 Aluminum ppm ASTM D5185m >10 0 0 Lead ppm ASTM D5185m >10 0 0 Copper ppm ASTM D5185m >10 0 0 Cadmium ppm ASTM D5185m >10 0 0 AbDTIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 90 0		hrs	Client Info		8156	Ũ	
Sample Status method limit/base current ABNORMAL WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 0 <1 Chromium ppm ASTM D5185m >10 0 0 Nickel ppm ASTM D5185m >3 0 0 Silver ppm ASTM D5185m >3 0 0 Lead ppm ASTM D5185m >10 0 0 Copper ppm ASTM D5185m >10 0 0 Vanadium ppm ASTM D5185m >10 0 0 ADDITIVES method imit/base current history1 history2 Boron ppm ASTM D5185m 0 0 Malpdenum ppm ASTM D5185m 0 0	•	hrs	Client Info		3644	0	
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 0 <1 Chromium ppm ASTM D5185m >10 0 0 Nickel ppm ASTM D5185m >3 0 0 Silver ppm ASTM D5185m >2 0 0 Aluminum ppm ASTM D5185m >2 0 0 Lead ppm ASTM D5185m >10 0 0 Copper ppm ASTM D5185m >10 0 0 Vanadium ppm ASTM D5185m >10 0 0 Cadmium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 0 0 Manganese ppm ASTM D5185m 0 0	Oil Changed		Client Info		Changed	N/A	
Iron ppm ASTM D5185m >50 0 <1	Sample Status				NORMAL	ABNORMAL	
Norm ppm ASTM D5185m >10 0 0	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >3 0 0 Titanium ppm ASTM D5185m >3 0 0 Silver ppm ASTM D5185m >2 0 0 Aluminum ppm ASTM D5185m >10 0 0 Lead ppm ASTM D5185m >10 0 0 Copper ppm ASTM D5185m >50 6 9 Yanadium ppm ASTM D5185m >10 0 0 Vanadium ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m 0 0 Boron ppm ASTM D5185m 90 0 Malgaese ppm ASTM D5185m 0 0 Magnesium ppm ASTM D5185m 2 0 <	Iron	ppm	ASTM D5185m	>50	0	<1	
Titanium ppm ASTM D5185m >3 0 0 Silver ppm ASTM D5185m >2 0 0 Aluminum ppm ASTM D5185m >10 0 0 Lead ppm ASTM D5185m >10 0 0 Copper ppm ASTM D5185m >50 6 9 Tin ppm ASTM D5185m >10 0 0 Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 Boron ppm ASTM D5185m 0 0 Barium ppm ASTM D5185m 90 0 Magnese ppm ASTM D5185m 90 6 19 Phosphorus ppm ASTM D5185m 2 0	Chromium	ppm	ASTM D5185m	>10	0	0	
Silver ppm ASTM D5185m >2 0 0 Aluminum ppm ASTM D5185m >10 0 0 Lead ppm ASTM D5185m >10 0 0 Copper ppm ASTM D5185m >50 6 9 Tin ppm ASTM D5185m >10 0 0 Vanadium ppm ASTM D5185m >10 0 0 Cadmium ppm ASTM D5185m >10 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 90 0 0 Malganese ppm ASTM D5185m 90 6 19 Magnesium ppm ASTM D5185m 2 0 0 Phosphorus ppm ASTM D5185m 21 3	Nickel	ppm	ASTM D5185m	>3	0	0	
Aluminum ppm ASTM D5185m >10 0 0 Lead ppm ASTM D5185m >10 0 0 Copper ppm ASTM D5185m >50 6 9 Tin ppm ASTM D5185m >10 0 0 Vanadium 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 Malganese ppm ASTM D5185m 90 0 Magnesium ppm ASTM D5185m 90 6 19 Magnesium ppm ASTM D5185m 2 0 0 Magnesium ppm ASTM D5185m 2 0	Titanium	ppm	ASTM D5185m	>3	0	0	
Lead ppm ASTM D5185m >10 0 0 Copper ppm ASTM D5185m >50 6 9 Tin ppm ASTM D5185m >10 0 0 Vanadium ppm ASTM D5185m >10 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 90 0 Magnesium ppm ASTM D5185m 90 6 19 Magnesium ppm ASTM D5185m 90 6 19 Calcium ppm ASTM D5185m 2 0 0 Phosphorus ppm ASTM D5185m 2 0 0	Silver	ppm	ASTM D5185m	>2	0	0	
Copper ppm ASTM D5185m >50 6 9 Tin ppm ASTM D5185m >10 0 0 Vanadium ppm ASTM D5185m >10 0 0 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 Barium ppm ASTM D5185m 90 0 0 Molybdenum ppm ASTM D5185m 90 0 Manganese ppm ASTM D5185m 90 6 19 Magnesium ppm ASTM D5185m 2 0 0 Phosphorus ppm ASTM D5185m 2 0 0 Silicon ppm ASTM D5185m >25	Aluminum	ppm	ASTM D5185m	>10	0	0	
Tin ppm ASTM D5185m >10 0 0 Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 90 0 0 Barium ppm ASTM D5185m 90 0 0 Molybdenum ppm ASTM D5185m 90 0 0 Manganese ppm ASTM D5185m 90 6 19 Magnesium ppm ASTM D5185m 2 0 0 Calcium ppm ASTM D5185m 2 0 0 Phosphorus ppm ASTM D5185m 2 0 0 Silicon ppm ASTM D5185m >25 0	Lead	ppm	ASTM D5185m	>10	0	0	
Vanadium ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 Barium ppm ASTM D5185m 90 0 0 Molybdenum ppm ASTM D5185m 90 0 0 Manganese ppm ASTM D5185m 90 6 19 Magnesium ppm ASTM D5185m 90 6 19 Calcium ppm ASTM D5185m 2 0 0 Phosphorus ppm ASTM D5185m 2 0 0 Zinc ppm ASTM D5185m 2 0 0 Silicon ppm ASTM D5185m >25 0 <1	Copper	ppm	ASTM D5185m	>50	6	9	
CadmiumppmASTM D5185m00ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m00BariumppmASTM D5185m9000MolybdenumppmASTM D5185m9000ManganeseppmASTM D5185m00MagnesiumppmASTM D5185m90619CalciumppmASTM D5185m200PhosphorusppmASTM D5185m200ZincppmASTM D5185m2338SiliconppmASTM D5185m>250<1SodiumppmASTM D5185m>2006Vater%ASTM D5304>0.050.0070.015ppm WaterppmASTM D6304>50070159.1	Tin	ppm	ASTM D5185m	>10	0	0	
ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m00BariumppmASTM D5185m9000MolybdenumppmASTM D5185m00ManganeseppmASTM D5185m0<1MagnesiumppmASTM D5185m90619CalciumppmASTM D5185m200PhosphorusppmASTM D5185m213ZincppmASTM D5185m2338SiliconppmASTM D5185m>250<1SodiumppmASTM D5185m2006Vater%ASTM D5185m>2006WaterppmASTM D6304>50070159.1	Vanadium	ppm	ASTM D5185m		0	0	
Boron ppm ASTM D5185m 0 0 Barium ppm ASTM D5185m 90 0 0 Molybdenum ppm ASTM D5185m 90 0 0 Manganese ppm ASTM D5185m 0 0 Magnesium ppm ASTM D5185m 90 6 19 Calcium ppm ASTM D5185m 90 6 19 Calcium ppm ASTM D5185m 2 0 0 Phosphorus ppm ASTM D5185m 2 0 0 Zinc ppm ASTM D5185m 2 0 0 Silicon ppm ASTM D5185m >25 0 <1 Sodium ppm ASTM D5185m >20 0 6 Vater % ASTM D6304 >0.05 0.007 0.015 <th>Cadmium</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>0</th> <th>0</th> <th></th>	Cadmium	ppm	ASTM D5185m		0	0	
Barium ppm ASTM D5185m 90 0 0 Molybdenum ppm ASTM D5185m 0 0 Manganese ppm ASTM D5185m 0 <1 Magnesium ppm ASTM D5185m 90 6 19 Calcium ppm ASTM D5185m 90 6 19 Calcium ppm ASTM D5185m 2 0 0 Phosphorus ppm ASTM D5185m 2 0 0 Zinc ppm ASTM D5185m 23 38 Silicon ppm ASTM D5185m >25 0 <1 Sodium ppm ASTM D5185m >25 0 <1 Sodium ppm ASTM D5185m >20 0 6 Water % ASTM D6304 >0.05 0.007 0.015 <th>ADDITIVES</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 0 0 Manganese ppm ASTM D5185m 0 <1 Magnesium ppm ASTM D5185m 90 6 19 Calcium ppm ASTM D5185m 2 0 0 Phosphorus ppm ASTM D5185m 2 0 0 Zinc ppm ASTM D5185m <1 3 Zinc ppm ASTM D5185m <23 38 Silicon ppm ASTM D5185m >25 0 <1 Sodium ppm ASTM D5185m >25 0 <1 Sodium ppm ASTM D5185m >20 0 6 Water % ASTM D6304 >0.05 0.007 0.015 ppm Water ppm ASTM D6304 >500 70 159.1	Boron	ppm	ASTM D5185m		0	0	
Manganese ppm ASTM D5185m 0 <1	Barium	ppm	ASTM D5185m	90	0	0	
Magnesium ppm ASTM D5185m 90 6 19 Calcium ppm ASTM D5185m 2 0 0 Phosphorus ppm ASTM D5185m 2 0 0 Phosphorus ppm ASTM D5185m 2 0 0 Zinc ppm ASTM D5185m 23 38 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 <1 Sodium ppm ASTM D5185m >20 0 6 Potassium ppm ASTM D6304 >0.05 0.007 0.015 Water % ASTM D6304 >500 70 159.1	Molybdenum	ppm	ASTM D5185m		0	0	
Calcium ppm ASTM D5185m 2 0 0 Phosphorus ppm ASTM D5185m <1 3 Zinc ppm ASTM D5185m 23 38 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 0 6 Vater % ASTM D6304 >0.05 0.007 0.015 ppm Water ppm ASTM D6304 >500 70 159.1	Manganese	ppm	ASTM D5185m		0	<1	
Phosphorus ppm ASTM D5185m <1	Magnesium	ppm	ASTM D5185m	90	6	19	
Zinc ppm ASTM D5185m 23 38 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 0 6 Vater % ASTM D6304 >0.05 0.007 0.015 ppm Water ppm ASTM D6304 >500 70 159.1	Calcium	ppm	ASTM D5185m	2	0	0	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 <1 Sodium ppm ASTM D5185m >25 0 <1 Potassium ppm ASTM D5185m >20 0 6 Water % ASTM D6304 >0.05 0.007 0.015 ppm Water ppm ASTM D6304 >500 70 159.1	Phosphorus	ppm	ASTM D5185m		<1	3	
Silicon ppm ASTM D5185m >25 0 <1	Zinc	ppm	ASTM D5185m		23	38	
Sodium ppm ASTM D5185m 1 4 Potassium ppm ASTM D5185m >20 0 6 Water % ASTM D6304 >0.05 0.007 0.015 ppm Water ppm ASTM D6304 >500 70 159.1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 0 6 Water % ASTM D6304 >0.05 0.007 0.015 ppm Water ppm ASTM D6304 >500 70 159.1	Silicon	ppm	ASTM D5185m	>25	0	<1	
Water % ASTM D6304 >0.05 0.007 0.015 ppm Water ppm ASTM D6304 >500 70 159.1	Sodium	ppm	ASTM D5185m		1	4	
ppm Water ppm ASTM D6304 >500 70 159.1	Potassium	ppm	ASTM D5185m	>20	0	6	
Let up the provide	Water	%	ASTM D6304	>0.05	0.007	0.015	
	ppm Water	ppm	ASTM D6304	>500	70	159.1	
FLUID CLEANLINESS method imit/base current nistory i nistory2	FLUID CLEANLIN	IESS	method	limit/base	current	history1	history2
Particles >4μm ASTM D7647 789	Particles >4µm		ASTM D7647		789		
Particles >6μm ASTM D7647 >1300 205	Particles >6µm		ASTM D7647	>1300	205		
Particles >14µm ASTM D7647 >80 14	Particles >14µm		ASTM D7647	>80	14		
Particles >21μm ASTM D7647 >20 3	Particles >21µm		ASTM D7647	>20	3		
Particles >38μm ASTM D7647 >4 0	Particles >38µm		ASTM D7647	>4	0		
Particles >71μm ASTM D7647 >3 0	Particles >71µm		ASTM D7647	>3	0		
Oil Cleanliness ISO 4406 (c) >/17/13 17/15/11	Oil Cleanliness		ISO 4406 (c)	>/17/13	17/15/11		
FLUID DEGRADATION method limit/base current history1 history2	FLUID DEGRADA		method	limit/base	current	history1	history2
Acid Number (AN) mg KOH/g ASTM D8045 0.4 0.40 0.35	Acid Number (AN)	mg KOH/g					



OIL ANALYSIS REPORT

Water (KF)	VISUAL		method	limit/base	current	history1	history2
10000 Severe	White Metal	scalar	*Visual	NONE	NONE	NONE	
- 8000	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
E 6000	Precipitate	scalar	*Visual	NONE	NONE	NONE	
(mdd) approx 4000	Silt	scalar	*Visual	NONE	NONE	NONE	
1000	Debris	scalar	*Visual	NONE	NONE	▲ MODER	
2000 Abnormal	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
3/23	Appearance	scalar	*Visual	NORML	NORML	NORML	
Aug23/23	Odor	scalar	*Visual	NORML	NORML	NORML	
Deutida Trand	Emulsified Water	scalar	*Visual	>0.05	NEG	NEG	
Particle Trend	Free Water	scalar	*Visual		NEG	NEG	
$\tilde{\epsilon}_{1k}^{1k} = \frac{4\mu m}{6\mu m}$	FLUID PROPER	TIES	method	limit/base	current	history1	history2
	Visc @ 40°C	cSt	ASTM D445	46	44.2	44.5	
	SAMPLE IMAGE	S	method	limit/base	current	history1	history2
Aug23/23 Aug23/23	Color						no image
Water (KF) 12000 10000 Severe 8000	Bottom						no image
4000 4 4 (b) 4 (c)	GRAPHS						
₩ 4000	Ferrous Alloys				Particle Count	:	
2000 -	10 iron			491,520			T ²⁶
	o tananananan chromium			122,880			+24
Aug23/23 23.73	E 6						
Au	2			30,720	†		+22
Viscosity @ 40°C	0			7,680	- N.		20 00
52 Abnormal	Aug 23/23			Jun28/24 s (per 1 ml) 076'1			0 440
50 -	Aug			ad) sa			F10 6:199
48 G 46 Base	Non-ferrous Meta	als		10 480			-16 Ce
(2, 46 - Base 0 (2) (46 - Base 57 (44	10 copper			Jun28242 1002 1202 1001 1002 1001 1002 1001 1002 1001 1002 1001 1002 1002			+14
42	o - necessaries lead			unmb		<u>}</u>	+20 ISO 4406:1999 Cleanliness Code +16 Cleanliness Code +14 +12 +12
40 - Abnormal				30		\backslash	-12 **
38	2				Bermenal		-10
Aug 23/23	0						
Ā -	Aug23/23			Jun28/24			-0
Particle Trend					и <u>б</u> и	14µ 21µ	384 714
1k 1k 4μm	Viscosity @ 40°C				Acid Number		
$\begin{bmatrix} \widehat{E} & 1k \end{bmatrix} \xrightarrow{k = 1} 1 k \frac{1}{4 \mu m}$	Abnormal			(^{0.50} Hoy 0.40	Base		
sg 11k +	5U + T			9 0.40 E 0.30			
] Cl Cl	() () () () () () () () () ()			는 0.20			
as de la companya de la compa	40 - Abnormal			4 0.20 9 0.20 9 0.10 9 0.10	1		
	35			. 0.00	Ц		
UK	Aug23/23			Jun28/24	Aug23/23		Jun28/24
Aug23/23	Aur			Jul	Au		Jur
Unique Number Certificate L2367 Test Package To discuss this sample repor * - Denotes test methods tha	t, contact Customer Ser t are outside of the ISO	Rece Teste Diagi vice at 1-8 17025 sco	ived : 11 ed : 12 nosed : 13 800-237-1368 ope of accred	Jul 2024 2 Jul 2024 Jul 2024 - Don 9. fitation.	Baldridge	l Contact: Sei	DWARDS DR LEBANON, IN US 46052 vice Manager T:
Statements of conformity to s					rule (JCGM 100	6:2012)	F:

Contact/Location: Service Manager - NEWLEB