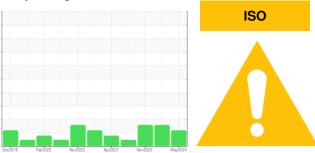


OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

6904133 (S/N 1378)

Compressor Fluid KAESER SIGMA (OEM) S-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 high amount of particulates present in the oil.

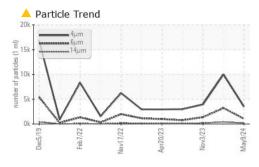
Fluid Condition

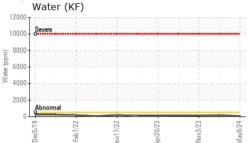
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

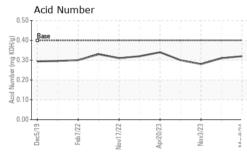
Sample Date Client Info 09 May 2024 06 Feb 2024 03 Nov 2023 Wachine Age hrs Client Info 0 0 0 0 Dil Age hrs Client Info 0 0 0 0 Dil Changed Client Info N/A N/A N/A N/A ABNORMAL Sample Status method limit/base current history! history! history! Yoren ppm ASTM D5185m >50 0 <1 0 Vickel ppm ASTM D5185m >33 0 <1 0 Vickel ppm ASTM D5185m >30 <1 0 <1 0 Lead ppm ASTM D5185m >10 0 <1 <1 <1 Vanadium ppm ASTM D5185m >50 18 10 9 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 23003 22050 20938 Dil Age hrs Client Info 0 0 0 0 Dil Age hrs Client Info N/A N/A N/A N/A Sample Status Client Info N/A ABNORMAL ABNORMAL ABNORMAL WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185m >10 0 <1	Sample Number		Client Info		KC121981	KC121973	KC121989
Dil Age hrs Client Info 0 0 0 Dil Changed Client Info N/A N/A N/A N/A Sample Status Image Client Info N/A ABNORMAL ABNORMAL WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185m >50 0 <1	Sample Date		Client Info		09 May 2024	06 Feb 2024	03 Nov 2023
Dil Changed Client Info N/A N/A N/A ABNORMAL ABNORMAL ABNORMAL ABNORMAL WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185m >50 0 <11 0 Chromium ppm ASTM D5185m >30 0 <11 0 Vickel ppm ASTM D5185m >30 0 <10 0 <10 0 Silver ppm ASTM D5185m >30 0 <11 0 Lead ppm ASTM D5185m >10 0 <11 <11 Cadmium ppm ASTM D5185m >10 <11 <11 <11 Cadmium ppm ASTM D5185m 0 0 <11 0 ADDITIVES method limit/base current history1 history2 Garon ppm ASTM D5185m 0 0 16 0 ADD	Machine Age	hrs	Client Info		23008	22050	20938
Sample Status Image ABNORMAL ABNORMAL ABNORMAL ABNORMAL ABNORMAL WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185m >50 0 <1	Oil Age	hrs	Client Info		0	0	0
WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185m >50 0 <1	Oil Changed		Client Info		N/A	N/A	N/A
ron ppm ASTM D5185m >50 0 <1 0 Chromium ppm ASTM D5185m >3 0 <1	Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
ppm ASTM D5185m >10 0 <1 0 Nickel ppm ASTM D5185m >3 0 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >3 0 <1 0 Titanium ppm ASTM D5185m >3 0 <1	Iron	ppm	ASTM D5185m	>50	0	<1	0
Titanium ppm ASTM D5185m >3 0 <1	Chromium	ppm	ASTM D5185m	>10	0	<1	0
Silver ppm ASTM D5185m >2 0 <1 0 Aluminum ppm ASTM D5185m >10 0 <1	Nickel	ppm	ASTM D5185m	>3	0	<1	0
Atuminum ppm ASTM D5185m >10 0 <1 <1 Lead ppm ASTM D5185m >10 0 <1	Titanium	ppm	ASTM D5185m	>3	0	<1	0
Lead ppm ASTM D5185m >10 0 <1 0 Copper ppm ASTM D5185m >50 18 10 9 Tin ppm ASTM D5185m >10 <1	Silver	ppm	ASTM D5185m	>2	0	<1	0
Copper ppm ASTM D5185m >50 18 10 9 Tin ppm ASTM D5185m >10 <1	Aluminum	ppm	ASTM D5185m	>10	0	<1	<1
Copper ppm ASTM D5185m >50 18 10 9 Tin ppm ASTM D5185m >10 <1	Lead	ppm	ASTM D5185m	>10	0	<1	0
Tin ppm ASTM D5185m >10 <1 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 <1	Copper		ASTM D5185m	>50	18	10	9
Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1	Tin				<1	<1	<1
Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 90 0 5 16 Molybdenum ppm ASTM D5185m 90 6 23 36 Magnese ppm ASTM D5185m 90 6 23 36 Calcium ppm ASTM D5185m 90 6 23 36 Calcium ppm ASTM D5185m 90 6 23 36 Calcium ppm ASTM D5185m 90 6 23 36 ContrAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 1 2 3 Sodium ppm ASTM D6185m >20 1 2 3 <td>Vanadium</td> <td></td> <td>ASTM D5185m</td> <td></td> <th></th> <td>0</td> <td>0</td>	Vanadium		ASTM D5185m			0	0
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 90 0 5 16 Molybdenum ppm ASTM D5185m 0 <1					-		
Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 90 0 5 16 Molybdenum ppm ASTM D5185m 0 <1		ppin		11 1. 11	-		-
Barium ppm ASTM D5185m 90 0 5 16 Molybdenum ppm ASTM D5185m 0 <1 0 Manganese ppm ASTM D5185m <1 <1 0 Magnesium ppm ASTM D5185m 90 6 23 36 Calcium ppm ASTM D5185m 90 6 23 36 Calcium ppm ASTM D5185m 90 6 23 36 Calcium ppm ASTM D5185m 90 0 11 <1 Zinc ppm ASTM D5185m 0 0 111 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 1 2 3 Vater % ASTM D5185m >20 1 2 3 Patticles >4µm ASTM D5647 >500 64 171 130.6	ADDITIVES			limit/base	current		
Molybdenum ppm ASTM D5185m 0 <1 0 Manganese ppm ASTM D5185m 90 6 23 36 Calcium ppm ASTM D5185m 2 0 0 2 Phosphorus ppm ASTM D5185m 2 0 0 1 Zinc ppm ASTM D5185m 0 0 11 <1	Boron	ppm	ASTM D5185m		-		0
Manganese ppm ASTM D5185m <1 <1 <1 0 Magnesium ppm ASTM D5185m 90 6 23 36 Calcium ppm ASTM D5185m 2 0 0 2 Phosphorus ppm ASTM D5185m 2 0 0 1 Zinc ppm ASTM D5185m 0 0 11 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 <1 0 Sodium ppm ASTM D5185m >20 1 2 3 Potassium ppm ASTM D6304 >0.05 0.006 0.017 0.013 opm Water ppm ASTM D7647 3483 10007 3951 Particles >4µm ASTM D7647 >1300 1050 3227 1352 Particles >4µm ASTM D7647 >80 197 413 194 Particles >21µm ASTM D7647 20 57 67 <t< td=""><td>Barium</td><td>ppm</td><td>ASTM D5185m</td><td>90</td><th>0</th><td>5</td><td>16</td></t<>	Barium	ppm	ASTM D5185m	90	0	5	16
Magnesium ppm ASTM D5185m 90 6 23 36 Calcium ppm ASTM D5185m 2 0 0 2 Phosphorus ppm ASTM D5185m 2 0 0 1 Zinc ppm ASTM D5185m 0 0 11 <1	Molybdenum	ppm	ASTM D5185m		0	<1	0
Calcium ppm ASTM D5185m 2 0 0 2 Phosphorus ppm ASTM D5185m 0 0 1 2 Zinc ppm ASTM D5185m 0 0 11 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 <1 0 Sodium ppm ASTM D5185m >25 <1 <1 0 Sodium ppm ASTM D5185m >25 <1 <1 0 Sodium ppm ASTM D5185m >20 1 2 3 Water % ASTM D6304 >0.05 0.0066 0.017 0.013 ppm ASTM D7647 3483 10007 3951 Particles >4µm ASTM D7647 >1300 1050 3227 1352 Particles >14µm ASTM D7647 >80 197 413 194	Manganese	ppm	ASTM D5185m		<1	<1	0
PhosphorusppmASTM D5185m001ZincppmASTM D5185m011<1CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25<1<10SodiumppmASTM D5185m>20123PotassiumppmASTM D5185m>20123Water%ASTM D6304>0.050.0060.0170.013opm WaterppmASTM D6304>50064171130.6FLUID CLEANLINESSmethodlimit/basecurrenthistory1history2Particles >4µmASTM D7647>1300105032271352Particles >4µmASTM D7647>20576730Particles >1µmASTM D7647>20576730Particles >38µmASTM D7647>3000Did IcleanlinessISO 4406 (c)/17/1319/17/1521/19/1619/18/15FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	Magnesium	ppm	ASTM D5185m	90	-		36
ZincppmASTM D5185m011<1CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25<1	Calcium	ppm	ASTM D5185m	2	0	0	2
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25<1	Phosphorus	ppm	ASTM D5185m		0	0	1
Silicon ppm ASTM D5185m >25 <1 <1 0 Sodium ppm ASTM D5185m >20 1 2 3 Potassium ppm ASTM D5185m >20 1 2 3 Water % ASTM D6304 >0.05 0.006 0.017 0.013 opm Water ppm ASTM D6304 >500 64 171 130.6 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >1300 1050 3227 1352 Particles >6µm ASTM D7647 >80 197 413 194 Particles >14µm ASTM D7647 >20 577 67 30 Particles >38µm ASTM D7647 >3 0 0 0 Particles >71µm ASTM D7647 >3 0 0 0 0 Oil Cleanliness ISO 4406 (c) /17/13 19/17/15 21/19/16 19/18/15	Zinc	ppm	ASTM D5185m		0	11	<1
Sodium ppm ASTM D5185m 4 7 13 Potassium ppm ASTM D5185m >20 1 2 3 Water % ASTM D6304 >0.05 0.006 0.017 0.013 opm Water ppm ASTM D6304 >500 64 171 130.6 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >1300 1050 3227 1352 Particles >6µm ASTM D7647 >1300 1050 3227 1352 Particles >14µm ASTM D7647 >80 197 413 194 Particles >21µm ASTM D7647 >20 57 67 30 Particles >38µm ASTM D7647 >3 0 0 0 Oli Cleanliness ISO 4406 (c) >/17/13 19/17/15 21/19/16 19/18/15 FLUID DEGRADATION method limit/base current history1 history2<	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 1 2 3 Water % ASTM D6304 >0.05 0.006 0.017 0.013 opm Water ppm ASTM D6304 >500 64 171 130.6 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >1300 1050 3227 1352 Particles >6µm ASTM D7647 >80 197 413 194 Particles >14µm ASTM D7647 >20 57 67 30 Particles >21µm ASTM D7647 >4 3 1 1 Particles >38µm ASTM D7647 >4 3 1 1 Particles >71µm ASTM D7647 >3 0 0 0 0 Di Cleanliness ISO 4406 (c) >/17/13 19/17/15 21/19/16 19/18/15 FLUID DEGRADATION method limit/base current history1 <	Silicon	ppm	ASTM D5185m	>25	<1	<1	0
Water % ASTM D6304 >0.05 0.006 0.017 0.013 opm Water ppm ASTM D6304 >500 64 171 130.6 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 3483 10007 3951 Particles >6µm ASTM D7647 >1300 1050 3227 1352 Particles >6µm ASTM D7647 >80 197 413 194 Particles >14µm ASTM D7647 >20 57 67 30 Particles >21µm ASTM D7647 >4 3 1 1 Particles >38µm ASTM D7647 >3 0 0 0 Particles >71µm ASTM D7647 >3 0 0 0 Oli I Cleanliness ISO 4406 (c) >/17/13 19/17/15 21/19/16 19/18/15 FLUID DEGRADATION method limit/base current history1 history2	Sodium	ppm	ASTM D5185m		4	7	13
Oppm Water ppm ASTM D6304 >500 64 171 130.6 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 3483 10007 3951 Particles >6µm ASTM D7647 >1300 1050 3227 1352 Particles >14µm ASTM D7647 >80 197 413 194 Particles >21µm ASTM D7647 >20 577 677 300 10 Particles >38µm ASTM D7647 >4 3 1 1 Particles >71µm ASTM D7647 >4 3 0 0 0 Oil Cleanliness ISO 4406 (c) >/17/13 19/17/15 21/19/16 19/18/15 FLUID DEGRADATION method limit/base current history1 history2	Potassium	ppm	ASTM D5185m	>20	1		3
FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 3483 10007 3951 Particles >6µm ASTM D7647 >1300 1050 ▲ 3227 ▲ 1352 Particles >14µm ASTM D7647 >80 ▲ 197 ▲ 413 ▲ 194 Particles >21µm ASTM D7647 >20 ▲ 577 ▲ 67 ▲ 300 Particles >38µm ASTM D7647 >4 3 1 1 Particles >71µm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >/17/13 ▲ 19/17/15 ▲ 21/19/16 ▲ 19/18/15 FLUID DEGRADATION method limit/base current history1 history2	Water	%	ASTM D6304	>0.05	0.006	0.017	0.013
Particles >4µm ASTM D7647 3483 10007 3951 Particles >6µm ASTM D7647 >1300 1050 3227 1352 Particles >14µm ASTM D7647 >80 197 413 194 Particles >21µm ASTM D7647 >20 577 677 30 Particles >21µm ASTM D7647 >4 3 1 1 Particles >38µm ASTM D7647 >4 3 1 1 Particles >38µm ASTM D7647 >3 0 0 0 Oli Cleanliness ISO 4406 (c) >/17/13 19/17/15 21/19/16 19/18/15 FLUID DEGRADATION method limit/base current history1 history2	ppm Water	ppm	ASTM D6304	>500	64	171	130.6
Particles >6µm ASTM D7647 >1300 1050 ▲ 3227 ▲ 1352 Particles >14µm ASTM D7647 >80 ▲ 197 ▲ 413 ▲ 194 Particles >21µm ASTM D7647 >20 ▲ 57 ▲ 67 ▲ 30 Particles >38µm ASTM D7647 >4 3 1 1 Particles >38µm ASTM D7647 >4 3 1 1 Particles >71µm ASTM D7647 >3 0 0 0 Dil Cleanliness ISO 4406 (c) >/17/13 ▲ 19/17/15 ▲ 21/19/16 ▲ 19/18/15 FLUID DEGRADATION method limit/base current history1 history2	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >14µm ASTM D7647 >80 ▲ 197 ▲ 413 ▲ 194 Particles >21µm ASTM D7647 >20 ▲ 57 ▲ 67 ▲ 30 Particles >38µm ASTM D7647 >4 3 1 1 Particles >38µm ASTM D7647 >4 3 1 1 Particles >71µm ASTM D7647 >3 0 0 0 Dil Cleanliness ISO 4406 (c) >/17/13 ▲ 19/17/15 ▲ 21/19/16 ▲ 19/18/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >4µm		ASTM D7647		3483	10007	3951
Particles >21μm ASTM D7647 >20 57 67 30 Particles >38μm ASTM D7647 >4 3 1 1 Particles >37μm ASTM D7647 >3 0 0 0 Dil Cleanliness ISO 4406 (c) >/17/13 19/17/15 21/19/16 19/18/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >6µm		ASTM D7647	>1300	1050	▲ 3227	🔺 1352
Particles >38μm ASTM D7647 >4 3 1 1 Particles >71μm ASTM D7647 >3 0 0 0 Dil Cleanliness ISO 4406 (c) >/17/13 19/17/15 21/19/16 19/18/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >14µm		ASTM D7647	>80	人 197	4 13	1 94
Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >/17/13 19/17/15 21/19/16 19/18/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >21µm		ASTM D7647	>20	<u> </u>	6 7	A 30
Dil Cleanliness ISO 4406 (c) >/17/13 ▲ 19/17/15 ▲ 21/19/16 ▲ 19/18/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >38µm		ASTM D7647	>4	3	1	1
FLUID DEGRADATION method limit/base current history1 history2	Particles >71µm		ASTM D7647	>3	0	0	0
	Oil Cleanliness		ISO 4406 (c)	>/17/13	1 9/17/15	2 1/19/16	▲ 19/18/15
Acid Number (AN) mg KOH/g ASTM D8045 0.4 0.32 0.31 0.28	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045	0.4	0.32	0.31	0.28

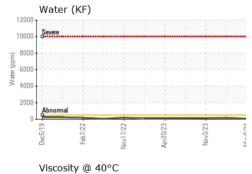


OIL ANALYSIS REPORT





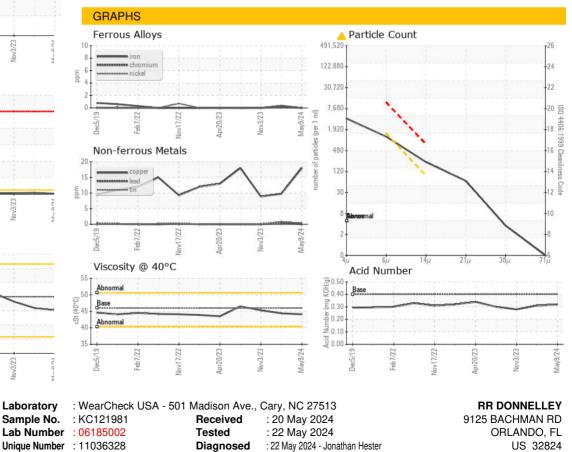


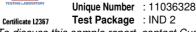




VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.05	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	46	44.1	44.4	45.3
SAMPLE IMAGES	6	method	limit/base	current	history1	history2
Color						

Bottom





Laboratory

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)

Report Id: RRDORL [WUSCAR] 06185002 (Generated: 05/22/2024 17:49:58) Rev: 1

Contact/Location: Service Manager - RRDORL

T:

F:

Contact: Service Manager