

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

KAESER 7044341

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.

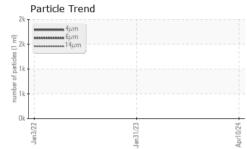
Sample Date Client Info 10 Apr 2024 31 Jan 2023 03 Jan 2022 Machine Age hrs Client Info 2430 767 177 Oil Age hrs Client Info 267 590 0 Oil Changed Client Info Not Changed Changed ABNORMAL ABNORMAL WEAR METALS method limit/base current history1 history2 Iron ppm ASTM 05185m >50 0 <1 0 Nickel ppm ASTM 05185m >33 0 0 0 Nickel ppm ASTM 05185m >3 0 <1 0 Auminum ppm ASTM 05185m >10 0 <1 0 Auminum ppm ASTM 05185m >50 6 4 1 1 Inn ppm ASTM 05185m >10 0 0 0 Copper ppm ASTM 05185m >50 6 4 1 <th>SAMPLE INFORM</th> <th>MATION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 2430 767 177 Oil Age hrs Client Info 267 590 0 Oil Age Net Changed Changed Changed Changed Sample Status Imit/base current history1 ABNORMALL VEAR METALS method Imit/base current history1 ABNORMALL VEAR METALS method Imit/base current history1 history2 Iron ppm ASTM 05185m >3 0 0 0 Nickel ppm ASTM 05185m >3 0 0 0 Silver ppm ASTM 05185m >2 0 0 0 Copper ppm ASTM 05185m >10 0 0 0 Vanadium ppm ASTM 05185m 0 0 0 0 Astm 05185m 0 0 0 0 0 0 Astm 05185m 0	Sample Number		Client Info		KC128420	KC102003	KC82735
Oil Age hrs Client Info 267 590 0 Oil Changed Client Info Not Changed Changed Changed Sample Status method limit/base current history1 ABNORMAL WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 0 <1 <1 Chromium ppm ASTM D5185m >30 0 0 0 Nickel ppm ASTM D5185m >20 0 <11 0 Lauminum ppm ASTM D5185m >10 0 <10 0 Copper ppm ASTM D5185m >10 0 0 0 0 Astmostiskm 10 0 0 0 0 0 0 Cadadium ppm ASTM D5185m 0 0 0 0 0 Cadadium ppm ASTM D5185m 0 0	Sample Date		Client Info		10 Apr 2024	31 Jan 2023	03 Jan 2022
Oil Changed Sample Status Client Info Not Changed NORMAL Changed ABNORMAL Changed ABNORMAL Changed ABNORMAL WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 0 <1 <1 Chromium ppm ASTM D5185m >30 0 <1 0 Nickel ppm ASTM D5185m >3 0 <1 0 Aluminum ppm ASTM D5185m >10 0 <1 0 Lead ppm ASTM D5185m >10 0 0 <1 Antimony ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Addenium ppm ASTM D5185m 0 0 0 0 Adaminum ppm ASTM D5185m 0 0 1 1 Mandarinse 0 0 1	Machine Age	hrs	Client Info		2430	767	177
Sample Status method Imit/base current History1 History2 Iron ppm ASTM D5165m >50 0 <1 <1 Chromium ppm ASTM D5165m >50 0 <1 <1 Iron ppm ASTM D5165m >3 0 <1 0 Nickel ppm ASTM D5165m >3 0 <1 0 Titanium ppm ASTM D5165m >2 0 0 <1 Aluminum ppm ASTM D5185m >10 0 <1 0 Lead ppm ASTM D5185m >10 0 0 <1 Antimony ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 Astmostism 0 0 0 0 0 0 0 Contram ppm ASTM D5185m 0 4	Oil Age	hrs	Client Info		267	590	0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5165m >50 0 <1 <1 Chromium ppm ASTM D5165m >3 0 0 0 Nickel ppm ASTM D5165m >3 0 0 0 Silver ppm ASTM D5165m >2 0 0 <1 0 Aluminum ppm ASTM D5165m >10 0 <1 0 <1 0 Lead ppm ASTM D5165m >10 0 0 <1 1 Tin ppm ASTM D5165m >10 0 0 0 0 Antimony ppm ASTM D5165m 0 0 0 0 0 Antimony ppm ASTM D5165m 0 0 0 0 0 Antimony ppm ASTM D5165m 0 0 0 0 0 0 </th <th>Oil Changed</th> <th></th> <th>Client Info</th> <th></th> <th>Not Changd</th> <th>Changed</th> <th>Changed</th>	Oil Changed		Client Info		Not Changd	Changed	Changed
Iron ppm ASTM D5185m >50 0 <1	Sample Status				NORMAL	ABNORMAL	ABNORMAL
Dromium ppm ASTM D5185m >10 0 0 0 Nickel ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >2 0 0 <1 Aluminum ppm ASTM D5185m >2 0 0 <1 Aluminum ppm ASTM D5185m >10 0 <1 0 Lead ppm ASTM D5185m >10 0 0 <1 Antimony ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Addenium ppm ASTM D5185m 0 0 0 0 Addenium ppm ASTM D5185m 0 0 0 0 Addenium ppm ASTM D5185m 0 64 37 22 Coron ppm ASTM D5185m 2 1 2 0 <th>WEAR METALS</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >3 0 <1	Iron	ppm	ASTM D5185m	>50	0	<1	<1
Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >2 0 <1 0 Aluminum ppm ASTM D5185m >10 0 0 0 0 Lead ppm ASTM D5185m >10 0 0 0 0 Copper ppm ASTM D5185m >10 0 0 <1 1 Antimony ppm ASTM D5185m >10 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 Barium ppm ASTM D5185m 90 4 0 0 0 0 0 Molybechnum ppm ASTM D5185m 0 <1 <1 1 1 1 1 1 1 1 1 1 1<	Chromium	ppm	ASTM D5185m	>10	0	0	0
Silver ppm ASTM D5185m >2 0 0 <1	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 4 1 Tin ppm ASTM D5185m >10 0 0 <1 Antimony ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Magnese ppm ASTM D5185m 0 <1 <1 1 Magnesium ppm ASTM D5185m 2 1 2 0 Phosphorus ppm ASTM D5185m 2 1 3 1 Slicon ppm ASTM D5185m 25 0 <1 0	Silver	ppm	ASTM D5185m	>2	0	0	<1
Copper ppm ASTM D5185m >50 6 4 1 Tin ppm ASTM D5185m >10 0 0 <1 Antimony ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 ADDITIVES method imit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Malganese ppm ASTM D5185m 0 <11 <1 1 Magnesium ppm ASTM D5185m 0 <11 <1 3 Zinc ppm ASTM D5185m 2 1 2 0 Phosphorus ppm ASTM D5185m 25 7 8 3 CONTAMINANTS method imit/base current history1	Aluminum	ppm	ASTM D5185m	>10	0	<1	0
Tin ppm ASTM D5185m >10 0 0 <11	Lead	ppm	ASTM D5185m	>10	0	0	0
Tin ppm ASTM D5185m >10 0 0 <1	Copper	ppm	ASTM D5185m	>50	6	4	1
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 23 Barium ppm ASTM D5185m 0 0 23 Barium ppm ASTM D5185m 90 4 0 0 Molybdenum ppm ASTM D5185m 90 64 37 22 Calcium ppm ASTM D5185m 2 1 2 0 Phosphorus ppm ASTM D5185m 2 1 3 2 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 25 0 <1	Tin		ASTM D5185m	>10	0	0	<1
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 23 Barium ppm ASTM D5185m 90 4 0 0 0 Molybdenum ppm ASTM D5185m 90 64 37 22 Calcium ppm ASTM D5185m 90 64 37 22 0 Magnesium ppm ASTM D5185m 2 1 2 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 <1	Antimony		ASTM D5185m				0
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 23 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 Magnese ppm ASTM D5185m 0 64 37 22 Calcium ppm ASTM D5185m 90 64 37 22 Calcium ppm ASTM D5185m 2 1 2 0 Phosphorus ppm ASTM D5185m 2 1 3 3 Zinc ppm ASTM D5185m 25 0 <1 0 Sodium ppm ASTM D5185m >20 1 3 <1 Vater % ASTM D5185m >20 1 3 <1 Water ppm ASTM D5804 >0.05 0.0433 0.023 0.018 ppm Water<	Vanadium	ppm	ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 0 4 0 23 Barium ppm ASTM D5185m 90 4 0 0 0 Molybdenum ppm ASTM D5185m 0 0 <1	Cadmium		ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 90 4 0 0 Molybdenum ppm ASTM D5185m 0 0 0 Marganese ppm ASTM D5185m 0 -<1 <1 Magnesium ppm ASTM D5185m 90 64 37 22 Calcium ppm ASTM D5185m 2 1 2 0 Phosphorus ppm ASTM D5185m 2 11 3 3 Zinc ppm ASTM D5185m 25 7 8 8 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 1 3 <1 Vater % ASTM D5185m >20 1 3 <1 Water % ASTM D6304 >0.05 0.043 0.023 0.018 ppm Water ppm ASTM D7647 1696	ADDITIVES		method	limit/base	current	history1	history2
Barium ppm ASTM D5185m 90 4 0 0 Molybdenum ppm ASTM D5185m 0 0 0 Maganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 90 64 37 22 Calcium ppm ASTM D5185m 2 1 2 0 Phosphorus ppm ASTM D5185m 2 11 3 3 Zinc ppm ASTM D5185m 25 7 8 8 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 <1 0 Sodium ppm ASTM D5185m >20 1 3 <1 Vater % ASTM D504 >0.05 0.043 0.023 0.018 ppm Water ppm ASTM D7647 1696	Boron	ppm	ASTM D5185m		0	0	23
Molybdenum ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 90 64 37 22 Calcium ppm ASTM D5185m 90 64 37 22 Calcium ppm ASTM D5185m 2 1 2 0 Phosphorus ppm ASTM D5185m 2 1 3 3 Zinc ppm ASTM D5185m 25 7 8 8 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 <1 0 Sodium ppm ASTM D5185m >20 1 3 <1 Water % ASTM D6304 >0.05 0.043 0.023 0.018 ppm Water ppm ASTM D647 1696 Particles >4µm ASTM D7647 1696	Barium		ASTM D5185m	90	4	0	0
Manganese ppm ASTM D5185m 0 <1	Molybdenum	ppm	ASTM D5185m		0	0	0
Calcium ppm ASTM D5185m 2 1 2 0 Phosphorus ppm ASTM D5185m 2 11 3 Zinc ppm ASTM D5185m 25 7 8 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m<>25 0 <1 0 Sodium ppm ASTM D5185m<>25 0 <1 0 Sodium ppm ASTM D5185m<>20 1 3 <1 Potassium ppm ASTM D5185m<>20 1 3 <1 Water % ASTM D5185m >20 1 3 <1 Water % ASTM D6304 >0.05 0.043 0.023 0.018 ppm Water ppm ASTM D7647 1696 Particles >4µm ASTM D7647 >1300 659 Particles >14µm ASTM D7647 20	Manganese	ppm	ASTM D5185m		0	<1	<1
Phosphorus ppm ASTM D5185m 2 11 3 Zinc ppm ASTM D5185m 25 7 8 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 <1	Magnesium	ppm	ASTM D5185m	90	64	37	22
ZincppmASTM D5185m2578CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>250<10SodiumppmASTM D5185m>2013<1PotassiumppmASTM D5185m>2013<1Water%ASTM D6304>0.050.0430.0230.018ppm WaterppmASTM D6304>500437232.6186.1FLUID CLEANLINESSmethodlimit/basecurrenthistory1history2Particles >4µmASTM D76471696Particles >6µmASTM D7647>1300659Particles >14µmASTM D7647>2026Particles >38µmASTM D7647>30Particles >71µmASTM D7647>30Particles >71µmASTM D7647>30Particles >71µmASTM D7647>30Oil CleanlinessISO 4406 (c)>/17/1318/17/13FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	Calcium	ppm	ASTM D5185m	2	1	2	0
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Silicon ppm ASTM D5185m >25 0 <1	Zinc	ppm	ASTM D5185m		25	7	8
Sodium ppm ASTM D5185m 13 19 4 Potassium ppm ASTM D5185m >20 1 3 <1 Water % ASTM D6304 >0.05 0.043 0.023 0.018 ppm Water ppm ASTM D6304 >500 437 232.6 186.1 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 1696 Particles >6µm ASTM D7647 >1300 659 Particles >14µm ASTM D7647 >80 73 Particles >21µm ASTM D7647 >20 26 Particles >38µm ASTM D7647 >3 0 Particles >71µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 18/17/13	CONTAMINANTS	6	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 1 3 <1	Silicon	ppm	ASTM D5185m	>25	0	<1	0
Water % ASTM D6304 >0.05 0.043 0.023 0.018 ppm Water ppm ASTM D6304 >500 437 232.6 186.1 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 1696 Particles >6µm ASTM D7647 >1300 659 Particles >6µm ASTM D7647 >80 73 Particles >14µm ASTM D7647 >20 26 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 18/17/13 FLUID DEGRADATION method limit/base current history1 history2	Sodium	ppm	ASTM D5185m		13	19	4
ppm Water ppm ASTM D6304 >500 437 232.6 186.1 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 1696 Particles >6µm ASTM D7647 >1300 659 Particles >6µm ASTM D7647 >80 73 Particles >14µm ASTM D7647 >20 26 Particles >21µm ASTM D7647 >4 2 Particles >38µm ASTM D7647 >3 0 Particles >71µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) /17/13 18/17/13 FLUID DEGRADATION method limit/base current history1 history2	Potassium	ppm	ASTM D5185m	>20	1	3	<1
FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 1696 Particles >6μm ASTM D7647 >1300 659 Particles >6μm ASTM D7647 >80 73 Particles >14μm ASTM D7647 >20 26 Particles >21μm ASTM D7647 >4 2 Particles >38μm ASTM D7647 >4 2 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 18/17/13 FLUID DEGRADATION method limit/base current history1 history2	Water	%	ASTM D6304	>0.05	0.043	0.023	0.018
Particles >4μm ASTM D7647 1696 Particles >6μm ASTM D7647 >1300 659 Particles >14μm ASTM D7647 >80 73 Particles >14μm ASTM D7647 >20 26 Particles >21μm ASTM D7647 >20 26 Particles >38μm ASTM D7647 >4 2 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 18/17/13 FLUID DEGRADATION method limit/base current history1 history2	ppm Water	ppm	ASTM D6304	>500	437	232.6	186.1
Particles >6μm ASTM D7647 >1300 659 Particles >14μm ASTM D7647 >80 73 Particles >14μm ASTM D7647 >80 73 Particles >21μm ASTM D7647 >20 26 Particles >38μm ASTM D7647 >4 2 Particles >38μm ASTM D7647 >4 2 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 18/17/13 FLUID DEGRADATION method limit/base current history1 history2	FLUID CLEANLIN	NESS	method	limit/base	current	history1	history2
Particles >14µm ASTM D7647 >80 73 Particles >21µm ASTM D7647 >20 26 Particles >38µm ASTM D7647 >4 2 Particles >38µm ASTM D7647 >4 2 Particles >71µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 18/17/13 FLUID DEGRADATION method limit/base current history1 history2	Particles >4µm		ASTM D7647		1696		
Particles >21μm ASTM D7647 >20 26 Particles >38μm ASTM D7647 >4 2 Particles >37μm ASTM D7647 >3 0 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 18/17/13 FLUID DEGRADATION method limit/base current history1 history2	Particles >6µm		ASTM D7647	>1300	659		
Particles >38μm ASTM D7647 >4 2 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 18/17/13 FLUID DEGRADATION method limit/base current history1 history2	Particles >14µm		ASTM D7647	>80	73		
Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >/17/13 18/17/13 FLUID DEGRADATION method limit/base current history1 history2	Particles >21µm		ASTM D7647	>20	26		
Oil Cleanliness ISO 4406 (c) >/17/13 18/17/13 FLUID DEGRADATION method limit/base current history1 history2	Particles >38µm		ASTM D7647	>4	2		
FLUID DEGRADATION method limit/base current history1 history2	Particles >71µm		ASTM D7647	>3	0		
	Oil Cleanliness		ISO 4406 (c)	>/17/13	18/17/13		
Acid Number (AN) mg KOH/g ASTM D8045 0.4 0.37 0.29 0.232	FLUID DEGRADA		method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045	0.4	0.37	0.29	0.232

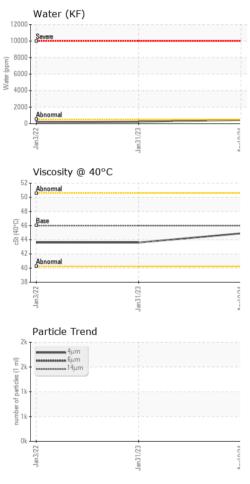
Contact/Location: Service Manager - SUNLAR Page 1 of 2



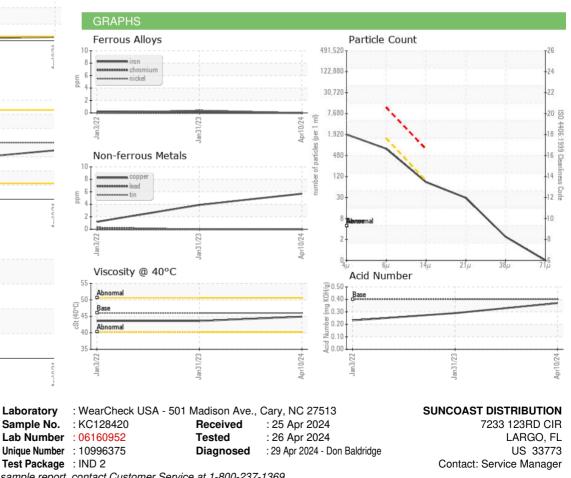
OIL ANALYSIS REPORT

	Wate	r (KF)				
	10000 - Severe				 	
(E	8000					
Water (ppm)	6000					
Wa	4000 -			1		
	2000 - Abnorm	al				
	0			-	 	 -
	Jan3/22		-	Jan31/23		Apr10/24





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	🔺 MODER	🔺 MODER
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	44.9	43.6	43.6
SAMPLE IMAGES	;	method	limit/base	current	history1	history2
Color				•		
Bottom						



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)

T: F:

Certificate 12367

Contact/Location: Service Manager - SUNLAR Page 2 of 2