

OIL ANALYSIS REPORT

Sample Rating Trend ISO

Machine Id KAESER NOT GIVEN 4496595 (S/N 1010)

Component Compressor

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

DIAGNOSIS

Recommendation

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.

Sample Date Client Info 10 May 2024 14 Nov 2023 23 Sep 20 Machine Age hrs Client Info 80756 78714 69776 Oil Age hrs Client Info 2042 0 7644 Oil Changed Client Info Changed ATTENTION ATTENTION ATTENTION WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >50 0 0 0 Nickel ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >10 0 0 0 Capper ppm ASTM D5185m >10 0 0 0 Vanadium ppm ASTM D5185m >10 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Date Ins Client Info 10 May 2024 14 Nov 2023 23 Sep 20 Machine Age hrs Client Info 80756 78714 69776 Oil Age Client Info Changed N/A Changed Sample Status Client Info Changed N/A Changed WEAR METALS method Imit/base current history1 history1 WEAR METALS method Imit/base current history1 history1 Nickel ppm ASTM D5185m >10 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Copper ppm ASTM D5185m >10 0 0 0 Cadmium ppm ASTM D5185m >10 0 0 0 Autinony ppm ASTM D5185m 0 0 0 1 Autininm ppm ASTM D5185m 0 0 0 1 A	Sample Number		Client Info		KCPA012472	KCPA007307	KCP11862
Oil Age hrs Client Info 2042 0 7644 Oil Changed Client Info ABNORMAL N/A Changed Sample Status method limit/base current history1 history1 VEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >50 0 0 0 Chromium ppm ASTM D5185m >3 0 0 0 Nickel ppm ASTM D5185m >2 0 <1	Sample Date		Client Info		10 May 2024	14 Nov 2023	23 Sep 2021
Oil Changed Client Info Changed N/A Changed Sample Status method imit/base current history1 history1 WEAR METALS method imit/base current history1 history1 Iron ppm ASTM D5185m >50 0 0 0 Chromium ppm ASTM D5185m >3 0 0 0 Nickel ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >10 0 0 0 Copper ppm ASTM D5185m >10 <11	Machine Age	hrs	Client Info		80756	78714	69776
Sample Status method Imit/base current Nistory1 ATTENTION WEAR METALS method Imit/base current Nistory1 Nistory1 Iron ppm ASTM D5185m >50 0 0 0 Nickel ppm ASTM D5185m >3 0 0 0 Nickel ppm ASTM D5185m >2 0 <1	Oil Age	hrs	Client Info		2042	0	7644
WEAR METALS method limit/base current history1 history1 fron ppm ASTM D5185m >50 0 0 0 Nickel ppm ASTM D5185m >3 0 0 0 Nickel ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >2 0 <1	Oil Changed		Client Info		Changed	N/A	Changed
Iron ppm ASTM D5165m >50 0 0 0 Chromium ppm ASTM D5165m >3 0 0 0 Nickel ppm ASTM D5165m >3 0 0 0 Silver ppm ASTM D5165m >2 0 <1	Sample Status				ABNORMAL	ATTENTION	ATTENTION
Drom ASTM D5185m >10 0 <1 0 Nickel ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >2 0 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >3 0 0 0 Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >2 0 <1	Iron	ppm	ASTM D5185m	>50	0	0	0
Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >2 0 <1	Chromium	ppm	ASTM D5185m	>10	0	<1	0
Silver ppm ASTM D5185m >2 0 <1 <1 Aluminum ppm ASTM D5185m >10 0 1 2 Lead ppm ASTM D5185m >10 0 0 0 Copper ppm ASTM D5185m >10 0 1 0 <1	Nickel	ppm	ASTM D5185m	>3	0	0	0
Aluminum ppm ASTM D5185m >10 0 1 2 Lead ppm ASTM D5185m >10 0 0 0 Copper ppm ASTM D5185m >50 6 12 12 Tin ppm ASTM D5185m >10 <1	Titanium	ppm	ASTM D5185m	>3	0	0	0
Lead ppm ASTM D5185m >10 0 0 0 Copper ppm ASTM D5185m >50 6 12 12 Tin ppm ASTM D5185m >10 <1	Silver	ppm	ASTM D5185m	>2	0	<1	<1
Copper ppm ASTM D5185m >50 6 12 12 Tin ppm ASTM D5185m >10 <1	Aluminum	ppm	ASTM D5185m	>10	0	1	2
Tin ppm ASTM D5185m >10 <1 0 <1 Antimony ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 histor Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 Maganese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 90 49 4 4 Calcium ppm ASTM D5185m 0 <1	Lead	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 histor Boron ppm ASTM D5185m 0 0 0 <1	Copper	ppm	ASTM D5185m	>50	6	12	12
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 histor Boron ppm ASTM D5185m 0 0 <1 0 Barium ppm ASTM D5185m 0 0 0 <1 Barium ppm ASTM D5185m 90 29 0 0 Marganese ppm ASTM D5185m 90 49 4 4 Calcium ppm ASTM D5185m 20 0 0 0 Marganese ppm ASTM D5185m 2 0 -11 0 Marganese ppm ASTM D5185m 2 0 -11 0 Marganesium ppm ASTM D5185m 2 0 -15 2 Sulfur ppm ASTM D5185m >2 3 2 3 <t< td=""><td>Tin</td><td>ppm</td><td>ASTM D5185m</td><td>>10</td><th><1</th><td>0</td><td><1</td></t<>	Tin	ppm	ASTM D5185m	>10	<1	0	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 histor Boron ppm ASTM D5185m 0 0 <1	Antimony	ppm	ASTM D5185m				0
ADDITIVES method limit/base current history1 histor Boron ppm ASTM D5185m 0 0 <1	Vanadium	ppm	ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 0 0 <1 Barium ppm ASTM D5185m 90 29 0 0 Molybdenum ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 90 49 4 0 Magnesium ppm ASTM D5185m 90 49 4 0 Calcium ppm ASTM D5185m 90 49 4 0 Phosphorus ppm ASTM D5185m 90 49 4 0 Zinc ppm ASTM D5185m 2 0 <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 90 29 0 0 Molybdenum ppm ASTM D5185m 0 0 0 Marganese ppm ASTM D5185m 90 49 4 4 Calcium ppm ASTM D5185m 90 49 4 4 Calcium ppm ASTM D5185m 2 0 <1 0 Phosphorus ppm ASTM D5185m 0 0 4 4 Zinc ppm ASTM D5185m 0 0 4 2 Sulfur ppm ASTM D5185m 20636 18999 15673 CONTAMINANTS method limit/base current history1 histor Silicon ppm ASTM D5185m >20 3 2 0 Sodium ppm ASTM D5185m >20 3 2 0 Sodium ppm ASTM D5185m >20 3 2 0	ADDITIVES		method	limit/base	current	history1	history2
Barium ppm ASTM D5185m 90 29 0 0 Molybdenum ppm ASTM D5185m 0 0 0 Maganese ppm ASTM D5185m <<1	Boron	ppm	ASTM D5185m		0	0	<1
Molybdenum ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m <<1	Barium		ASTM D5185m	90	29	0	0
Manganese ppm ASTM D5185m <1 0 0 Magnesium ppm ASTM D5185m 90 49 4 4 Calcium ppm ASTM D5185m 2 0 <1	Molybdenum		ASTM D5185m		0	0	0
Magnesium ppm ASTM D5185m 90 49 4 4 Calcium ppm ASTM D5185m 2 0 <1			ASTM D5185m		<1	0	0
Phosphorus ppm ASTM D5185m 0 0 4 Zinc ppm ASTM D5185m 5 <1 2 Sulfur ppm ASTM D5185m 20636 18999 15673 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 <1 <1 0 Sodium ppm ASTM D5185m >25 <1 <1 0 Sodium ppm ASTM D5185m >20 3 2 0 Water % ASTM D6304 >0.05 0.015 0.010 0.003 ppm ASTM D6304 >500 154 106 35.0 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 >1300 3256 1318 1094 Particles >14µm ASTM D7647 >20 39 25 15 Particles >21	Magnesium	ppm	ASTM D5185m	90	49	4	4
Zinc ppm ASTM D5185m 5 <1 2 Sulfur ppm ASTM D5185m 20636 18999 15673 CONTAMINANTS method limit/base current history1 histor Silicon ppm ASTM D5185m >25 <1	Calcium	ppm	ASTM D5185m	2	0	<1	0
Zinc ppm ASTM D5185m 5 <1 2 Sulfur ppm ASTM D5185m 20636 18999 15673 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 <1	Phosphorus		ASTM D5185m		0	0	4
CONTAMINANTS method limit/base current history1 histor Silicon ppm ASTM D5185m<>25 <1			ASTM D5185m		5	<1	2
Silicon ppm ASTM D5185m >25 <1 <1 0 Sodium ppm ASTM D5185m 15 2 3 Potassium ppm ASTM D5185m >20 3 2 0 Water % ASTM D6304 >0.05 0.015 0.010 0.003 ppm Water ppm ASTM D6304 >500 154 106 35.0 FLUID CLEANLINESS method limit/base current history1 histor Particles >4µm ASTM D7647 11492 3410 2800 Particles >6µm ASTM D7647 >1300 3256 1318 1094 Particles >14µm ASTM D7647 >80 185 97 111 Particles >21µm ASTM D7647 >20 39 25 15 Particles >38µm ASTM D7647 >4 1 2 0 Particles >71µm ASTM D7647 >3 0 0 0 0 Oil Clean	Sulfur	ppm	ASTM D5185m		20636	18999	15673
Sodium ppm ASTM D5185m 15 2 3 Potassium ppm ASTM D5185m >20 3 2 0 Water % ASTM D6304 >0.05 0.015 0.010 0.003 ppm Water ppm ASTM D6304 >500 154 106 35.0 FLUID CLEANLINESS method limit/base current history1 histor Particles >4µm ASTM D7647 11492 3410 2800 Particles >6µm ASTM D7647 >1300 3256 1318 1094 Particles >14µm ASTM D7647 >80 185 97 111 Particles >21µm ASTM D7647 >20 39 25 15 Particles >38µm ASTM D7647 >4 1 2 0 Particles >71µm ASTM D7647 >3 0 0 0 OI Cleanliness ISO 4406 (c) >17/13 19/15 18/14 17/14	CONTAMINANTS		method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m 15 2 3 Potassium ppm ASTM D5185m >20 3 2 0 Water % ASTM D6304 >0.05 0.015 0.010 0.003 ppm Water ppm ASTM D6304 >500 154 106 35.0 FLUID CLEANLINESS method limit/base current history1 histor Particles >4µm ASTM D7647 11492 3410 2800 Particles >6µm ASTM D7647 >1300 3256 1318 1094 Particles >14µm ASTM D7647 >80 185 97 111 Particles >21µm ASTM D7647 >20 39 25 15 Particles >38µm ASTM D7647 >4 1 2 0 Oil Cleanliness ISO 4406 (c) >17/13 19/15 18/14 17/14 FLUID DEGRADATION method limit/base current history1 histor	Silicon	ppm	ASTM D5185m	>25	<1	<1	0
Potassium ppm ASTM D5185m >20 3 2 0 Water % ASTM D6304 >0.05 0.015 0.010 0.003 ppm Water ppm ASTM D6304 >500 154 106 35.0 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 11492 3410 2800 Particles >6µm ASTM D7647 >1300 3256 1318 1094 Particles >14µm ASTM D7647 >80 185 97 111 Particles >21µm ASTM D7647 >20 39 25 15 Particles >38µm ASTM D7647 >4 1 2 0 Particles >71µm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >17/13 19/15 18/14 17/14			ASTM D5185m		15	2	3
Water % ASTM D6304 >0.05 0.015 0.010 0.003 ppm Water ppm ASTM D6304 >500 154 106 35.0 FLUID CLEANLINESS method limit/base current history1 histor Particles >4µm ASTM D7647 11492 3410 2800 Particles >6µm ASTM D7647 >1300 3256 1318 1094 Particles >14µm ASTM D7647 >80 185 97 111 Particles >21µm ASTM D7647 >20 39 25 15 Particles >38µm ASTM D7647 >4 1 2 0 Particles >71µm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >17/13 19/15 18/14 17/14 FLUID DEGRADATION method limit/base current history1 history1	Potassium		ASTM D5185m	>20	3	2	0
ppm Water ppm ASTM D6304 >500 154 106 35.0 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 11492 3410 2800 Particles >6µm ASTM D7647 >1300 3256 1318 1094 Particles >14µm ASTM D7647 >80 185 97 111 Particles >21µm ASTM D7647 >20 39 25 15 Particles >38µm ASTM D7647 >4 1 2 0 Particles >38µm ASTM D7647 >4 1 2 0 Oil Cleanliness ISO 4406 (c) >17/13 19/15 18/14 17/14 FLUID DEGRADATION method limit/base current history1 history1	Water		ASTM D6304	>0.05	0.015	0.010	0.003
Particles >4μm ASTM D7647 11492 3410 2800 Particles >6μm ASTM D7647 >1300 ▲ 3256 1318 1094 Particles >14μm ASTM D7647 >80 ▲ 185 97 111 Particles >21μm ASTM D7647 >20 ▲ 39 25 15 Particles >21μm ASTM D7647 >4 1 2 0 Particles >38μm ASTM D7647 >4 1 2 0 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >17/13 19/15 18/14 17/14 FLUID DEGRADATION method limit/base current history1 history1	ppm Water	ppm			154	106	35.0
Particles >6µm ASTM D7647 >1300 ▲ 3256 1318 1094 Particles >14µm ASTM D7647 >80 ▲ 185 97 111 Particles >21µm ASTM D7647 >20 ▲ 39 25 15 Particles >38µm ASTM D7647 >4 1 2 0 Particles >71µm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >17/13 19/15 18/14 17/14 FLUID DEGRADATION method limit/base current history1 history1	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >14µm ASTM D7647 >80 ▲ 185 97 111 Particles >21µm ASTM D7647 >20 ▲ 39 25 15 Particles >38µm ASTM D7647 >4 1 2 0 Particles >71µm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >17/13 ▲ 19/15 18/14 17/14 FLUID DEGRADATION method limit/base current history1 history1	Particles >4µm		ASTM D7647		11492	3410	2800
Particles >21µm ASTM D7647 >20 ▲ 39 25 15 Particles >38µm ASTM D7647 >4 1 2 0 Particles >71µm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >17/13 ▲ 19/15 18/14 17/14 FLUID DEGRADATION method limit/base current history1 history1	Particles >6µm		ASTM D7647	>1300	A 3256	1318	1094
Particles >38μm ASTM D7647 >4 1 2 0 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >17/13 ▲ 19/15 18/14 17/14 FLUID DEGRADATION method limit/base current history1 history1	Particles >14µm		ASTM D7647	>80	🔺 185	97	111
Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >17/13 ▲ 19/15 18/14 17/14 FLUID DEGRADATION method limit/base current history1 history1	Particles >21µm		ASTM D7647	>20	<mark>/</mark> 39	25	15
Oil Cleanliness ISO 4406 (c) >17/13 19/15 18/14 17/14 FLUID DEGRADATION method limit/base current history1 history1	Particles >38µm		ASTM D7647	>4	1	2	0
FLUID DEGRADATION method limit/base current history1 histor	Particles >71µm		ASTM D7647	>3	0	0	0
	Oil Cleanliness		ISO 4406 (c)	>17/13	 19/15	18/14	17/14
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Acid Number (AN) mg KOH/g ASTM D8045 0.4 0.34 0.32 0.391 53:48) Rev: 1 Contact/Location: ? ? - INTI	Acid Number (AN)	mg KOH/g	ASTM D8045	0.4	0.34	0.32	0.391

Report Id: INTDEN [WUSCAR] 06185045 (Generated: 05/22/2024 17:53:48) Rev: 1

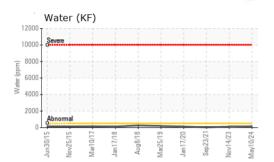
Contact/Location: ? - IN I DEN

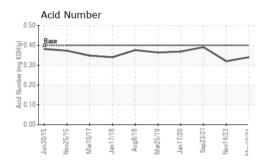
Page 1 of 2

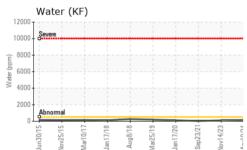


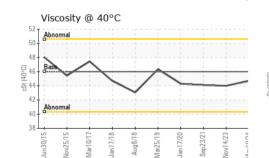
OIL ANALYSIS REPORT

_		4µm	A1 -							
〒200k -		14μι	n .							
8월 150k -		1	1							
1) sappred to sapured to sapured to sapured to sapured to sapure t		11	11							
190000 50k -		1/		1						
E SUK		1	1		-	_	1		1	1
0k	-			Jan	and an open set	and a state of the	of the Real Property lies of	and the second	our other designment of the	in succession,











1	Laboratory
AB	Sample No
EDITED	Lab Numbe
LABORATORY	Unique Numb
ate 2367	Test Packad

	Laboratory
	Sample No.
	Lab Numbe
	Unique Numbe





: 22 May 2024 : 22 May 2024 - Jonathan Hester ge : IND 2 (Additional Tests: KF, PrtCount)

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.

ar10/1

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Report Id: INTDEN [WUSCAR] 06185045 (Generated: 05/22/2024 17:53:48) Rev: 1

VISUAL limit/base method current history1 history2 NONE NONE NONE White Metal *Visual NONE scalar Yellow Metal *Visual NONE NONE NONE NONE scalar Precipitate NONE NONE NONE scalar *Visual NONE Silt scalar *Visual NONE NONE NONE NONE Debris *Visual NONE NONE scalar NONE LIGHT Sand/Dirt NONE NONE NONE NONE scalar *Visual NORML NORML NORML NORML Appearance scalar *Visual Odor *Visual NORML NORML NORML NORML scalar **Emulsified Water** scalar *Visual >0.05 NEG NEG NEG Free Water scalar *Visual NEG NEG NEG FLUID PROPERTIES method limit/base current history history2 Visc @ 40°C cSt ASTM D445 46 44.7 44.0 44.1 SAMPLE IMAGES method limit/base historv1 history2 current

Color



Bottom

GRAPHS Ferrous Alloys

15

10

55

50

40

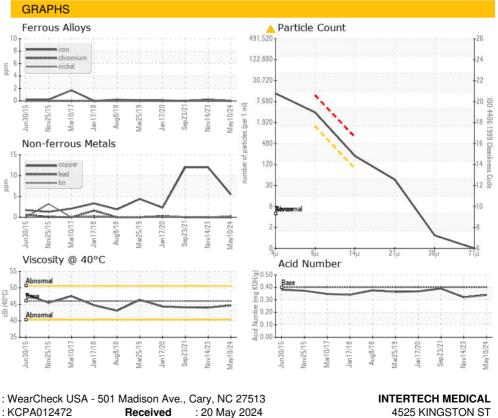
35

1 41

un30/

Apr1

an17/



4525 KINGSTON ST

DENVER, CO US 80239 Contact:

> T: F:

Contact/Location: ? ? - INTDEN