

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

7122595 (S/N 1033)

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

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

The amount and size of particulates present in the system are acceptable.

Fluid Condition

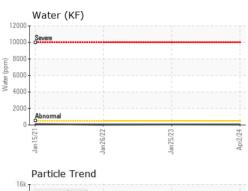
The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service.

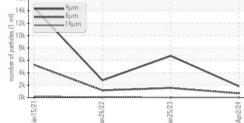
Sample Date Client Info 02 Apr 2024 25 Jan 2023 26 Jan 2022 Machine Age hrs Client Info 16883 8900 3704 Oil Age hrs Client Info 3539 5196 2219 Oil Changed Client Info Changed NORMAL ATTENTION NORMAL WEAR METALS method Imit/base current history1 history1 history2 Iron ppm ASTM 05165m >3 <1 0 0 Nickel ppm ASTM 05165m >3 <1 0 0 Aluminum ppm ASTM 05165m >3 <1 0 0 Aluminum ppm ASTM 05165m >10 <1 0 0 Aluminum ppm ASTM 05165m >10 <1 0 0 Adminum ppm ASTM 05165m <9 6 6 6 Tinn ppm ASTM 05165m <1 0 0	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 16883 8900 3704 Oil Age hrs Client Info 3539 5196 2219 Oil Changed Client Info Changed Shitt Distist Client Info Client Info <td< th=""><th>Sample Number</th><th></th><th>Client Info</th><th></th><th>KC130116</th><th>KC100655</th><th>KC96159</th></td<>	Sample Number		Client Info		KC130116	KC100655	KC96159
Oil Age hrs Client Info 3539 5196 2219 Oil Changed Client Info Changed Changed Changed Sample Status Imitibase current history2 Iron ppm ASTM 05185m >50 0 0 <1 Chromium ppm ASTM 05185m >3 <1 0 0 Nickel ppm ASTM 05185m >3 <1 0 0 Silver ppm ASTM 05185m >3 <1 0 0 Aduminum ppm ASTM 05185m >10 3 <1 0 0 Aduminum ppm ASTM 05185m >10 3 <1 0 0 Aduminum ppm ASTM 05185m >10 1 0 0 0 Astm 05185m >10 1 0 0 0 0 0 Cadmium ppm ASTM 05185m 1 0 0 0 <th>Sample Date</th> <th></th> <th>Client Info</th> <th></th> <th>02 Apr 2024</th> <th>25 Jan 2023</th> <th>26 Jan 2022</th>	Sample Date		Client Info		02 Apr 2024	25 Jan 2023	26 Jan 2022
Oil Changed Sample Status Client Info Changed NORMAL Changed ATTENTION Changed NORMAL WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185n >50 0 0 <1 Othornium ppm ASTM D5185n >3 <1 0 0 Nickel ppm ASTM D5185n >3 <1 0 0 Silver ppm ASTM D5185n >3 <1 0 0 Lead ppm ASTM D5185n >10 3 <1 0 0 Astm D5185n >10 3 <1 0 0 0 Astm D5185n >10 <1 0 0 0 0 Astm D5185n >10 <1 0 0 0 0 Astm D5185n >0 2 0 0 0 0 Astm D5185n 90 10 0 0 0	Machine Age	hrs	Client Info		16883	8900	3704
Sample Status Morental ATTENTION NORMAL WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >50 0 0 <1 Chromium ppm ASTM D5185m >3 <1 0 0 Nickel ppm ASTM D5185m >3 <1 0 0 Silver ppm ASTM D5185m >3 <1 0 0 Aluminum ppm ASTM D5185m >10 3 <1 0 0 Aluminum ppm ASTM D5185m >10 <1 0 0 Copper ppm ASTM D5185m >10 <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 0 ADDITIVES method Imit/base current history1 history2 Boron ppm ASTM D5185m 90 2 0 0	Oil Age	hrs	Client Info		3539	5196	2219
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM 05185m >50 0 0 <1 Chromium ppm ASTM 05185m >50 0 0 <1 Nickel ppm ASTM 05185m >3 <1 0 0 Silver ppm ASTM 05185m >2 <1 0 0 Aluminum ppm ASTM 05185m >10 3 <1 0 0 Aduminum ppm ASTM 05185m >10 <1 0 0 0 Aduminum ppm ASTM 05185m >10 <1 0 0 0 Aditiony ppm ASTM 05185m >10 <1 0 0 0 Aditiony ppm ASTM 05185m <1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Oil Changed		Client Info		Changed	Changed	Changed
Iron ppm ASTM D5185m >50 0 0 <1	Sample Status				NORMAL	ATTENTION	NORMAL
Chromium ppm ASTM D5185m >10 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >3 <1	Iron	ppm	ASTM D5185m	>50	0	0	<1
Titanium ppm ASTM D5185m >3 <1	Chromium	ppm	ASTM D5185m	>10	<1	0	0
Silver ppm ASTM D5185m >2 <1	Nickel	ppm	ASTM D5185m	>3	<1	0	0
Aluminum ppm ASTM D5185m >10 3 <1	Titanium	ppm	ASTM D5185m	>3	<1	0	0
Lead ppm ASTM D5185m >10 <1	Silver	ppm	ASTM D5185m	>2	<1	0	0
Copper ppm ASTM D5185m >50 9 6 6 Tin ppm ASTM D5185m >10 <1 0 0 Antimony ppm ASTM D5185m 0 Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 <1 0 Barium ppm ASTM D5185m <1 0 0 0 Magnesium ppm ASTM D5185m <1 0 0 0 Colacium ppm ASTM D5185m 2 0 0 0 0 Zinc ppm ASTM D5185m 2 0 0 0 0 Silicon ppm ASTM D5185m 20 2 0 0 0	Aluminum	ppm	ASTM D5185m	>10	3	<1	0
Tin ppm ASTM D5185m >10 <1	Lead	ppm	ASTM D5185m	>10	<1	0	0
Tin ppm ASTM D5185m >10 <1	Copper	ppm	ASTM D5185m	>50	9	6	6
Vanadium ppm ASTM D5185m <1	Tin		ASTM D5185m	>10	<1		0
Cadmium ppm ASTM D5185m <1	Antimony	ppm	ASTM D5185m				0
Cadmium ppm ASTM D5185m <1	Vanadium	ppm	ASTM D5185m		<1	0	0
Boron ppm ASTM D5185m 0 0 <1	Cadmium		ASTM D5185m		<1	0	0
Barium ppm ASTM D5185m 90 2 0 0 Molybdenum ppm ASTM D5185m <1 0 0 Manganese ppm ASTM D5185m <1 0 0 Magnesium ppm ASTM D5185m 90 10 0 0 Calcium ppm ASTM D5185m 2 0 0 0 Calcium ppm ASTM D5185m 2 0 0 0 Contaction ppm ASTM D5185m 0 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 0 <1 Sodium ppm ASTM D5185m 20 2 0 0 Sodium ppm ASTM D6185m >20 2 0 0 Water % ASTM D6304 >0.05 0.0004 0.005 0.003	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m <1	Boron	ppm	ASTM D5185m		0	0	<1
Manganese ppm ASTM D5185m <1	Barium	ppm	ASTM D5185m	90	2	0	0
Magnesium ppm ASTM D5185m 90 10 0 0 Calcium ppm ASTM D5185m 2 0 0 0 Phosphorus ppm ASTM D5185m 0 0 6 Zinc ppm ASTM D5185m 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 0 <1 Sodium ppm ASTM D5185m >25 <1 0 <1 Potassium ppm ASTM D5185m >20 2 0 0 Water % ASTM D5185m >20 2 0 0.003 ppm ASTM D5185m >20 2 0 0.003 ppm ASTM D5185m >20 2 0.003 0.003 ppm ASTM D51804 >500 42 56.2 27.5 FLUID CLEANLINESS method <th>Molybdenum</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th><1</th> <th>0</th> <th>0</th>	Molybdenum	ppm	ASTM D5185m		<1	0	0
Calcium ppm ASTM D5185m 2 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 6 Zinc ppm ASTM D5185m 0 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 0 <1 Sodium ppm ASTM D5185m >25 <1 0 <1 Potassium ppm ASTM D5185m >20 2 0 0 Water % ASTM D5185m >20 2 0 0.003 ppm Water ppm ASTM D6304 >0.05 0.004 0.005 0.003 ppm Vater ppm ASTM D7647 1822 6718 2779 Particles >4µm ASTM D7647 >1300 674 1539 1161 Particles >14µm ASTM D7647 >20 8 5 12	Manganese	ppm	ASTM D5185m		<1	0	0
Phosphorus ppm ASTM D5185m 0 0 6 Zinc ppm ASTM D5185m 0 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1	Magnesium	ppm	ASTM D5185m	90	10	0	0
Zinc ppm ASTM D5185m 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 0 <1 Sodium ppm ASTM D5185m >25 <1 0 <1 Potassium ppm ASTM D5185m >20 2 0 0 Water % ASTM D6304 >0.05 0.004 0.005 0.003 ppm Water ppm ASTM D6304 >500 42 56.2 27.5 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 1822 6718 2779 Particles >6µm ASTM D7647 >1300 674 1539 1161 Particles >1µm ASTM D7647 >20 8 5 12 Particles >21µm ASTM D7647 >4 0 1 1 Part	Calcium	ppm	ASTM D5185m	2	0	0	0
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 0 <1 Sodium ppm ASTM D5185m >20 2 0 0 Potassium ppm ASTM D5185m >20 2 0 0 Water % ASTM D6304 >0.05 0.004 0.005 0.003 ppm Water ppm ASTM D6304 >500 42 56.2 27.5 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 1822 6718 2779 Particles >6µm ASTM D7647 >1300 674 1539 1161 Particles >14µm ASTM D7647 >80 39 19 88 Particles >38µm ASTM D7647 >4 0 1 1 Particles >71µm ASTM D7647 >3 0 0 0 0 </th <th>Phosphorus</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>0</th> <th>0</th> <th>6</th>	Phosphorus	ppm	ASTM D5185m		0	0	6
Silicon ppm ASTM D5185m >25 <1	Zinc	ppm	ASTM D5185m		0	0	0
Sodium ppm ASTM D5185m 1 <1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 0 0 Water % ASTM D6304 >0.05 0.004 0.005 0.003 ppm ASTM D6304 >500 42 56.2 27.5 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 1822 6718 2779 Particles >6µm ASTM D7647 >1300 674 1539 1161 Particles >14µm ASTM D7647 >80 39 19 88 Particles >21µm ASTM D7647 >20 8 5 12 Particles >38µm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) /17/13 18/17/12 20/18/11 17/14 FLUID DEGRADATION method limit/base current history1 history2	Silicon	ppm	ASTM D5185m	>25	<1	0	<1
Water % ASTM D6304 >0.05 0.004 0.005 0.003 ppm Water ppm ASTM D6304 >500 42 56.2 27.5 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 1822 6718 2779 Particles >6µm ASTM D7647 >1300 674 1539 1161 Particles >14µm ASTM D7647 >80 39 19 88 Particles >21µm ASTM D7647 >20 8 5 12 Particles >38µm ASTM D7647 >3 0 0 0 Oli Cleanliness ISO 4406 (c) >/17/13 18/17/12 20/18/11 17/14 FLUID DEGRADATION method limit/base current history1 history2	Sodium	ppm	ASTM D5185m		1	<1	<1
ppm Water ppm ASTM D6304 >500 42 56.2 27.5 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 1822 6718 2779 Particles >6µm ASTM D7647 >1300 674 1539 1161 Particles >14µm ASTM D7647 >80 39 19 88 Particles >14µm ASTM D7647 >20 8 5 12 Particles >21µm ASTM D7647 >4 0 1 1 Particles >38µm ASTM D7647 >3 0 0 0 Oli I Cleanliness ISO 4406 (c) /17/13 18/17/12 20/18/11 17/14 FLUID DEGRADATION method limit/base current history1 history2	Potassium	ppm	ASTM D5185m	>20	2	0	0
FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 1822 6718 2779 Particles >6µm ASTM D7647 >1300 674 1539 1161 Particles >14µm ASTM D7647 >80 39 19 88 Particles >21µm ASTM D7647 >20 8 5 12 Particles >38µm ASTM D7647 >4 0 1 1 Particles >71µm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >/17/13 18/17/12 20/18/11 17/14	Water	%	ASTM D6304	>0.05	0.004	0.005	0.003
Particles >4μm ASTM D7647 1822 6718 2779 Particles >6μm ASTM D7647 >1300 674 1539 1161 Particles >14μm ASTM D7647 >80 39 19 88 Particles >14μm ASTM D7647 >20 8 5 12 Particles >21μm ASTM D7647 >20 8 5 12 Particles >38μm ASTM D7647 >4 0 1 1 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >/17/13 18/17/12 20/18/11 17/14 FLUID DEGRADATION method limit/base current history1 history2	ppm Water	ppm	ASTM D6304	>500	42	56.2	27.5
Particles >6μm ASTM D7647 >1300 674 1539 1161 Particles >14μm ASTM D7647 >80 39 19 88 Particles >21μm ASTM D7647 >20 8 5 12 Particles >38μm ASTM D7647 >4 0 1 1 Particles >38μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >/17/13 18/17/12 20/18/11 17/14 FLUID DEGRADATION method limit/base current history1 history2	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >14µm ASTM D7647 >80 39 19 88 Particles >21µm ASTM D7647 >20 8 5 12 Particles >38µm ASTM D7647 >4 0 1 1 Particles >38µm ASTM D7647 >4 0 0 0 Particles >71µm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >/17/13 18/17/12 20/18/11 17/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >4µm		ASTM D7647		1822	6718	2779
Particles >21μm ASTM D7647 >20 8 5 12 Particles >38μm ASTM D7647 >4 0 1 1 Particles >37μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >/17/13 18/17/12 20/18/11 17/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >6µm		ASTM D7647	>1300	674	6 1539	1161
Particles >38μm ASTM D7647 >4 0 1 1 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >/17/13 18/17/12 20/18/11 17/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >14µm		ASTM D7647	>80	39	19	88
Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >/17/13 18/17/12 20/18/11 17/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >21µm		ASTM D7647	>20	8	5	12
Oil Cleanliness ISO 4406 (c) >/17/13 18/17/12 20/18/11 17/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >38µm		ASTM D7647	>4	0	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	18/17/12	0/18/11	17/14
Acid Number (AN) mgK0H/g ASTM D8045 0.4 0.29 0.31 0.29	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045	0.4	0.29	0.31	0.29

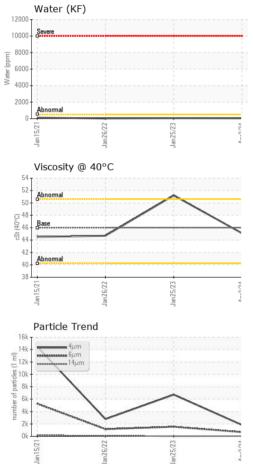
Contact/Location: Service Manager - MCGKAL Page 1 of 2



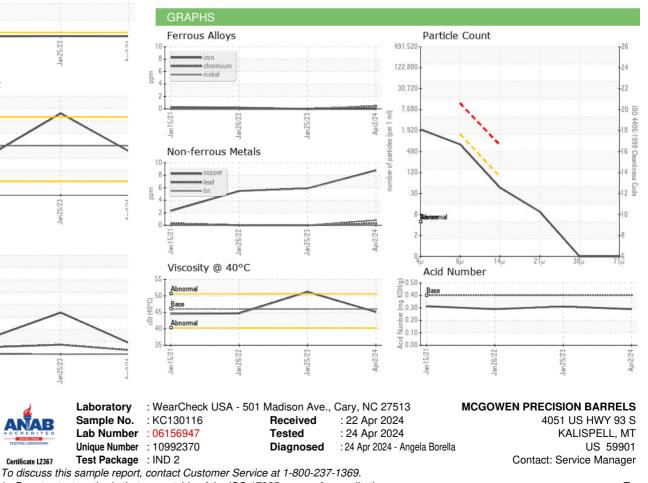
OIL ANALYSIS REPORT







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	45.1	51.2	44.7
SAMPLE IMAGES	\$	method	limit/base	current	history1	history2
Color						
Bottom						



* - 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 - MCGKAL Page 2 of 2