

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

PROBLEMATIC TEST	FRESULTS			
Sample Status		ABNORMAL	ATTENTION	ABNORMAL
Particles >6µm	ASTM D7647 >130	0 🔺 9399	1248	
Particles >14µm	ASTM D7647 >80	A 741	<u> </u>	
Particles >21µm	ASTM D7647 >20	<u> </u>	<mark>▲</mark> 32	
Oil Cleanliness	ISO 4406 (c) >/17	7/13 🔺 22/20/17	🔺 19/17/14	

Customer Id: CINNORIL Sample No.: KCP48038A Lab Number: 05929594 Test Package: IND 2



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To discuss the diagnosis or test data: Angela Borella +1 800-237-1369 angela.borella@wearcheckusa.com

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

RECOMMENDED	ACTIONS			
Action	Status	Date	Done By	Description
Change Fluid			?	Oil and filter change at the time of sampling has been noted.
Change Filter			?	Oil and filter change at the time of sampling has been noted.

HISTORICAL DIAGNOSIS



05 Oct 2022 Diag: Don Baldridge

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. There is a moderate amount of particulates present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



27 Sep 2021 Diag: Don Baldridge



Oil and filter change at the time of sampling has been noted. We recommend an early resample in 500 hours to monitor this condition. We were unable to perform a particle count due to a high concentration of particles present in this sample.All component wear rates are normal. Moderate concentration of visible dirt/debris present in the oil. There is a light concentration of water present in the oil. Free water present. The AN level is acceptable for this fluid.





OIL ANALYSIS REPORT

Sample Rating Trend ISO

Machine Id **KAESER 7011156** Component

Compressor Fluid

KAESER SIGMA (OEM) M-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 Number Client Info KCP48038A KCP46725D KCP36543 Sample Date Client Info 11 Aug 202 05 Oct 2022 27 Sep 2021 Machine Age hrs Client Info 19118 50 Oct 2022 27 Sep 2021 Ol Age hrs Client Info 19118 3000 4000 Ol Age Client Info Changed Changed Changed Changed Sample Status method Imtos Current history1 history1 Iron ppm ASTM 05155m >50 <1 1 <1 Chromium ppm ASTM 05155m >2 0 <1 <1 Chromium ppm ASTM 05155m >2 0 <1 <1 Silver ppm ASTM 05155m >50 19 12 8 Tinanum ppm ASTM 05155m <1 0 0 0 Adaminum ppm ASTM 05155m <1 0 0 0	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Date Image Client Info Image 1918 05 Oct 2022 27 Sep 2021 Machine Age hrs Client Info 19118 15312 10285 Oil Age hrs Client Info 0 3000 4000 Oil Age Krs Client Info Changed Changed Changed Sample Status Image Client Info ABNORMAL ATTENTION ABNORMAL WEAR METALS method Imitbase current history1 ABNORMAL Chromium ppm ASTM 05185m >50 <1	Sample Number		Client Info		KCP48038A	KCP46725D	KCP36543
Machine Age hrs Client Info 19118 15312 10285 Oil Age hrs Client Info 0 3000 4000 Oil Age Client Info Changed Changed Changed Changed Sample Status Image Lent Info ABNORMAL ATTENTION ABNORMAL ATTENTION Nistory2 Iron ppm ASTM 05185m >50 <1			Client Info		11 Aug 2023	05 Oct 2022	27 Sep 2021
Oil Age hrs Client Info 0 3000 4000 Oil Changed Client Info Changed Changed Changed Changed ABNORMAL WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM 05185m >50 <1	•	hrs			-	15312	
Oli Changed Sample Status Client Info Changed ABNORMAL Changed ATTENTION Changed ABNORMAL WEAR METALS method limit/base current history1 ABNORMAL WEAR METALS method limit/base current history1 Iron ppm ASTM D5185n >50 <1 <1 <1 Chromium ppm ASTM D5185n >33 0 0 <10 Nickel ppm ASTM D5185n >33 <10 0 0 31 Aluminum ppm ASTM D5185n >10 0 0 <11 2 Adminum ppm ASTM D5185n >50 19 12 8 Tin ppm ASTM D5185n 0 0 0 0 0 Cadmium ppm ASTM D5185n 0 0 0 0 0 Datation ppm ASTM D5185n 0 0 0 0 0 Barion <td>•</td> <td>hrs</td> <td>Client Info</td> <td></td> <th>0</th> <td>3000</td> <td>4000</td>	•	hrs	Client Info		0	3000	4000
Sample Status method imit/base current history1 history2 Iron ppm ASTM D5185m >50 <1 <1 <1 Chromium ppm ASTM D5185m >30 0 0 0 Nickel ppm ASTM D5185m >33 0 0 0 Titanium ppm ASTM D5185m >33 0 0 3 Lead ppm ASTM D5185m >30 0 0 3 Lead ppm ASTM D5185m >10 0 0 3 Copper ppm ASTM D5185m >10 0 0 0 Vanadium ppm ASTM D5185m 10 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 Magnasium ppm ASTM D5185m 0	-		Client Info		Changed	Changed	Changed
Iron ppm ASTM D5185m >50 <1	-				-	ATTENTION	
Chromium ppm ASTM D5185m >10 0 0 0 Nickel ppm ASTM D5185m >3 0 0 <1 Titanium ppm ASTM D5185m >3 <1 0 0 Silver ppm ASTM D5185m >10 0 0 3 Lead ppm ASTM D5185m >10 0 0 <1 Copper ppm ASTM D5185m >10 0 0 0 Antimony ppm ASTM D5185m >10 0 0 0 Antimony ppm ASTM D5185m 0 0 0 0 Antimony ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 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 0 <1 Titanium ppm ASTM D5185m >2 0 <1	Iron	ppm	ASTM D5185m	>50	<1	<1	<1
Titanium ppm ASTM D5185m >3 <1 0 0 Silver ppm ASTM D5185m >2 0 <1	Chromium	ppm	ASTM D5185m	>10	0	0	0
Silver ppm ASTM D5185m >2 0 <1 <1 Aluminum ppm ASTM D5185m >10 0 0 3 Lead ppm ASTM D5185m >10 0 0 <1 Copper ppm ASTM D5185m >10 0 0 0 0 In ppm ASTM D5185m >10 0 0 0 0 Antimony ppm ASTM D5185m <1 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 0 Magnese ppm ASTM D5185m 0 0 0 0 0 0 Magnesium ppm ASTM D5185m 0 105 129 133 Sulfur ppm ASTM D5185m 225 <1 2 2 Co	Nickel	ppm	ASTM D5185m	>3	0	0	<1
Silver ppm ASTM D5185m >2 0 <1 <1 Aluminum ppm ASTM D5185m >10 0 0 3 Lead ppm ASTM D5185m >10 0 0 <1	Titanium		ASTM D5185m	>3	<1	0	0
Lead ppm ASTM D5185m >10 0 0 <1 Copper ppm ASTM D5185m >50 19 12 8 Tin ppm ASTM D5185m >10 0 0 0 Antimony ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m <1	Silver	ppm	ASTM D5185m	>2	0	<1	<1
Lead ppm ASTM D5185m >10 0 0 <1 Copper ppm ASTM D5185m >50 19 12 8 Tin ppm ASTM D5185m >10 0 0 0 Antimony ppm ASTM D5185m <1	Aluminum		ASTM D5185m	>10	0	0	3
Copper ppm ASTM D5185m >50 19 12 8 Tin ppm ASTM D5185m >10 0 0 0 Antimony ppm ASTM D5185m 0 0 Vanadium ppm ASTM D5185m <1	Lead		ASTM D5185m	>10	0	0	<1
Tin ppm ASTM D5185m >10 0 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 <1 0 Barium ppm ASTM D5185m 0 0 <1 <1 0 Manganese ppm ASTM D5185m 0 0 0 0 0 Magnesium ppm ASTM D5185m 0 10 1 <1 2 Calcium ppm ASTM D5185m 0 0 0 0 0 Stifur ppm ASTM D5185m 0 105 129 133 Suffur ppm ASTM D5185m 23500 21459 20442 17419 CONTAMINANTS method limit/base	Copper		ASTM D5185m	>50	19	12	8
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Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 <1 <1 Barium ppm ASTM D5185m 0 0 <1 <1 0 Molybdenum ppm ASTM D5185m 0 0 <1 0 0 Marganese ppm ASTM D5185m 100 1 <1 2 Calcium ppm ASTM D5185m 0 <10 0 0 0 Sulfur ppm ASTM D5185m 0 <11 0 <1 Sulfur ppm ASTM D5185m 23500 21459 20442 17419 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m	Antimony		ASTM D5185m				0
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ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 <1	Cadmium		ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2
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Magnesium ppm ASTM D5185m 100 1 <1 2 Calcium ppm ASTM D5185m 0 0 0 0 Phosphorus ppm ASTM D5185m 0 105 129 133 Zinc ppm ASTM D5185m 0 105 129 133 Sulfur ppm ASTM D5185m 23500 21459 20442 17419 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1	Molybdenum	ppm	ASTM D5185m	0	0	<1	0
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Phosphorus ppm ASTM D5185m 0 <1 0 <1 Zinc ppm ASTM D5185m 0 105 129 133 Sulfur ppm ASTM D5185m 23500 21459 20442 17419 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1	Magnesium	ppm	ASTM D5185m	100	1	<1	2
Zinc ppm ASTM D5185m 0 105 129 133 Sulfur ppm ASTM D5185m 23500 21459 20442 17419 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 2 2 Sodium ppm ASTM D5185m >20 <1 0 <1 Potassium ppm ASTM D5185m >20 <1 0 <1 0 Vater % ASTM D6304 >0.05 0.006 0.006 0.230 ppm Water ppm ASTM D6304 >500 60.3 69.2 2300 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >1300 9399 1248 Particles >21µm ASTM D7647 >20 211 32 Particles >38µm ASTM D7647 >20 </td <td>Calcium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>0</th> <td>0</td> <td>0</td>	Calcium	ppm	ASTM D5185m	0	0	0	0
Sulfur ppm ASTM D5185m 23500 21459 20442 17419 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 2 2 Sodium ppm ASTM D5185m >20 <1 1 0 Potassium ppm ASTM D5185m >20 <1 0 <1 Water % ASTM D5185m >20 <1 0 <1 0 Ppm ASTM D5185m >20 <1 0 <1 0 <1 Vater % ASTM D5185m >20 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 <td>Phosphorus</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th><1</th> <td>0</td> <td><1</td>	Phosphorus	ppm	ASTM D5185m	0	<1	0	<1
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1	Zinc	ppm	ASTM D5185m	0	105	129	133
Silicon ppm ASTM D5185m >25 <1	Sulfur	ppm	ASTM D5185m	23500	21459	20442	17419
Sodium ppm ASTM D5185m 1 1 0 Potassium ppm ASTM D5185m >20 <1 0 <1 Water % ASTM D5185m >20 <1 0 <1 Water % ASTM D6304 >0.05 0.006 0.006 △ 0.230 ppm Water ppm ASTM D6304 >500 60.3 69.2 ▲ 2300 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 27902 3407 Particles >6µm ASTM D7647 >1300 9399 1248 Particles >14µm ASTM D7647 >80 741 98 Particles >21µm ASTM D7647 >20 211 32 Particles >38µm ASTM D7647 >3 0 1 Oil Cleanliness ISO 4406 (c) >/17/13 22/20/17 19/17/14	CONTAMINANTS		method	limit/base	current	history1	history2
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Water % ASTM D6304 >0.05 0.006 0.006 0.230 ppm ASTM D6304 >500 60.3 69.2 2300 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 27902 3407 Particles >6µm ASTM D7647 >1300 9399 1248 Particles >14µm ASTM D7647 >80 741 98 Particles >21µm ASTM D7647 >20 211 32 Particles >21µm ASTM D7647 >4 5 3 Particles >38µm ASTM D7647 >3 0 1 Oil Cleanliness ISO 4406 (c) >/17/13 22/20/17 19/17/14 FLUID DEGRADATION method limit/base current history1 history2	Sodium		ASTM D5185m			1	0
ppm Water ppm ASTM D6304 >500 60.3 69.2 2300 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 27902 3407 Particles >6µm ASTM D7647 >1300 9399 1248 Particles >14µm ASTM D7647 >80 741 98 Particles >21µm ASTM D7647 >20 211 32 Particles >38µm ASTM D7647 >4 5 3 Particles >71µm ASTM D7647 >3 0 1 Oil Cleanliness ISO 4406 (c) >/17/13 22/20/17 19/17/14 FLUID DEGRADATION method limit/base current history1 history2	Potassium	ppm	ASTM D5185m	>20	<1	0	<1
FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 27902 3407 Particles >6µm ASTM D7647 >1300 9399 1248 Particles >14µm ASTM D7647 >80 741 98 Particles >14µm ASTM D7647 >20 211 32 Particles >21µm ASTM D7647 >4 5 3 Particles >38µm ASTM D7647 >4 5 3 Particles >71µm ASTM D7647 >3 0 1 Oil Cleanliness ISO 4406 (c) >/17/13 22/20/17 19/17/14 FLUID DEGRADATION method limit/base current history1 history2	Water	%	ASTM D6304	>0.05	0.006	0.006	0.230
Particles >4μm ASTM D7647 27902 3407 Particles >6μm ASTM D7647 >1300 9399 1248 Particles >14μm ASTM D7647 >80 741 98 Particles >21μm ASTM D7647 >20 211 32 Particles >21μm ASTM D7647 >4 5 3 Particles >38μm ASTM D7647 >4 5 3 Particles >71μm ASTM D7647 >3 0 1 Oil Cleanliness ISO 4406 (c) >/17/13 22/20/17 19/17/14 FLUID DEGRADATION method limit/base current history1 history2	ppm Water	ppm	ASTM D6304	>500	60.3	69.2	2 300
Particles >6μm ASTM D7647 >1300 ▲ 9399 1248 Particles >14μm ASTM D7647 >80 ▲ 741 ▲ 98 Particles >21μm ASTM D7647 >20 ▲ 211 ▲ 32 Particles >38μm ASTM D7647 >4 5 3 Particles >38μm ASTM D7647 >3 0 1 Particles >71μm ASTM D7647 >3 0 1 Oil Cleanliness ISO 4406 (c) >/17/13 ▲ 22/20/17 ▲ 19/17/14 FLUID DEGRADATION method limit/base current history1 history2	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >6μm ASTM D7647 >1300 ▲ 9399 1248 Particles >14μm ASTM D7647 >80 ▲ 741 ▲ 98 Particles >21μm ASTM D7647 >20 ▲ 211 ▲ 32 Particles >38μm ASTM D7647 >4 5 3 Particles >38μm ASTM D7647 >3 0 1 Particles >71μm ASTM D7647 >3 0 1 Oil Cleanliness ISO 4406 (c) >/17/13 ▲ 22/20/17 ▲ 19/17/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >4µm		ASTM D7647		27902	3407	
Particles >21µm ASTM D7647 >20 ▲ 211 ▲ 32 Particles >38µm ASTM D7647 >4 5 3 Particles >38µm ASTM D7647 >4 5 3 Particles >71µm ASTM D7647 >3 0 1 Oil Cleanliness ISO 4406 (c) >/17/13 22/20/17 19/17/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >6µm		ASTM D7647	>1300	<u> </u>	1248	
Particles >38μm ASTM D7647 >4 5 3 Particles >71μm ASTM D7647 >3 0 1 Oil Cleanliness ISO 4406 (c) >/17/13 A 22/20/17 A 19/17/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >14µm		ASTM D7647	>80	<u> </u>	▲ 98	
Particles >71μm ASTM D7647 >3 0 1 Oil Cleanliness ISO 4406 (c) >/17/13 22/20/17 19/17/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >21µm		ASTM D7647	>20	<u> </u>	▲ 32	
Oil Cleanliness ISO 4406 (c) >/17/13 22/20/17 19/17/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >38µm		ASTM D7647	>4	5	3	
FLUID DEGRADATION method limit/base current history1 history2			ASTM D7647	>3	0	1	
	Particles >71µm				v		
Acid Number (AN) mg KOH/g ASTM D8045 1.0 0.45 0.47 0.402						▲ 19/17/14	
	Oil Cleanliness		ISO 4406 (c)	>/17/13	22/20/17		

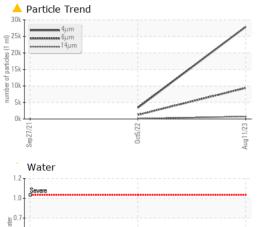
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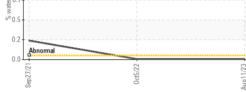
Contact/Location: Service Manager - CINNORIL

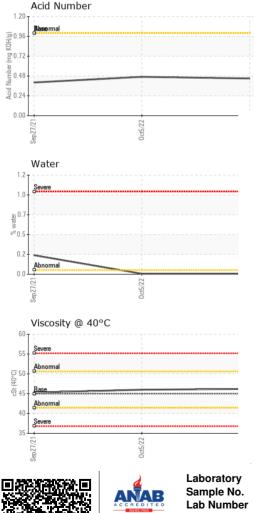


Built for a lifetime.

OIL ANALYSIS REPORT

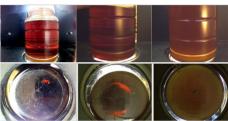




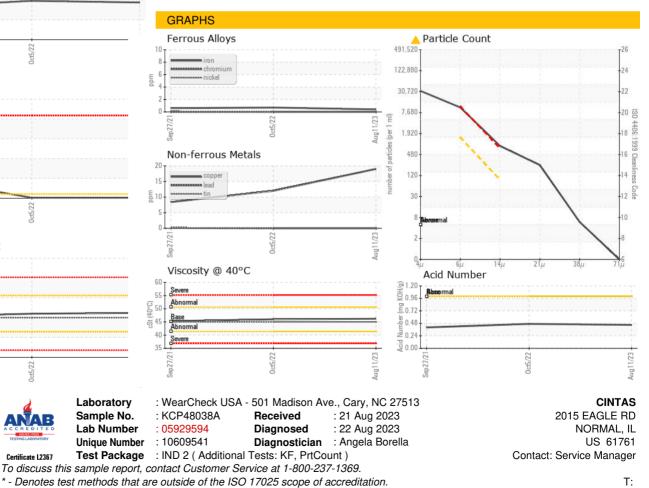


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	LIGHT	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	LIGHT	🔺 MODER
Sand/Dirt	scalar	*Visual	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	1 .0
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	45	46.2	46.0	45.3
SAMPLE IMAGES	S	method	limit/base	current	history1	history2





Bottom



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

Certificate L2367

Contact/Location: Service Manager - CINNORIL