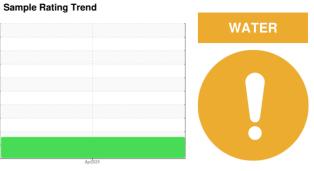


OIL ANALYSIS REPORT

Area **PO-4010** Machine Id ATLAS COPCO HOL070212 - CITY OF RICHMOND

Component



Recommendation

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.

Wear

All component wear rates are normal.

Contamination

There is a light concentration of water present in the

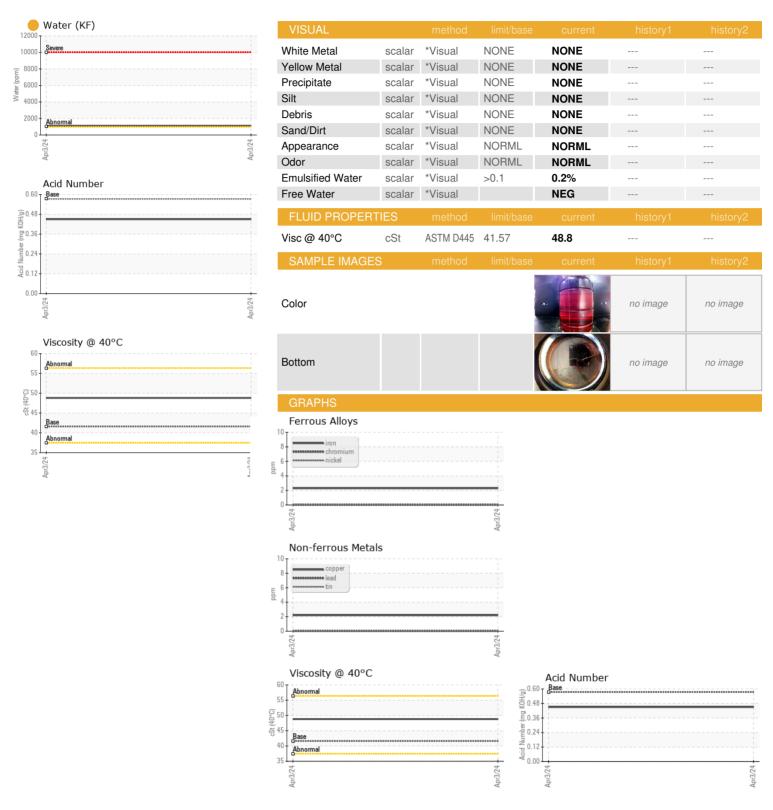
Fluid Condition

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

Sample Number Client Info UCH06148823 Sample Date Client Info O3 Apr 2024							
Sample Date Client Info O3 Apr 2024	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 0 Oil Age hrs Client Info 0 Oil Changed Client Info Changed Sample Status ATTENTION WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 2 Chromium ppm ASTM D5185m >50 0 Nickel ppm ASTM D5185m 0 Titanium ppm ASTM D5185m 0 Silver ppm ASTM D5185m 0 Aluminum ppm ASTM D5185m 0 Lead ppm ASTM D5185m >10 0 Copper ppm <	Sample Number		Client Info		UCH06148823		
Oil Age hrs Client Info Changed Sample Status method limit/base current history1 history2 Iron ppm ASTM D5185m >50 2 Chromium ppm ASTM D5185m >5 0 Nickel ppm ASTM D5185m 0 Nickel ppm ASTM D5185m 0 Silver ppm ASTM D5185m 0 Aluminum ppm ASTM D5185m 0 Aluminum ppm ASTM D5185m 0 Lead ppm ASTM D5185m >65 0 Copper ppm ASTM D5185m >665 2 Vanadium ppm ASTM D5185m 0 0 Cadmium ppm	Sample Date		Client Info		03 Apr 2024		
Client Info Changed Client Info Client I	Machine Age	hrs	Client Info		0		
MEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 2	Oil Age	hrs	Client Info		0		
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 2 Nickel ppm ASTM D5185m 0 Nickel ppm ASTM D5185m 0 Titanium ppm ASTM D5185m 0 Silver ppm ASTM D5185m 0 Aluminum ppm ASTM D5185m >15 <1	Oil Changed		Client Info		Changed		
Contromium	Sample Status				ATTENTION		
Chromium	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>50	2		
Description	Chromium	ppm	ASTM D5185m	>5	0		
Silver	Nickel	ppm	ASTM D5185m		0		
Aluminum ppm ASTM D5185m >15 <1 Lead ppm ASTM D5185m >65 0 Copper ppm ASTM D5185m >65 2 Tin ppm ASTM D5185m >10 0 Vanadium ppm ASTM D5185m 0 1 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0.4 2 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0.4 2	Titanium	ppm	ASTM D5185m		0		
Lead	Silver	ppm	ASTM D5185m		0		
Copper ppm ASTM D5185m >65 2 Tin ppm ASTM D5185m >10 0 Vanadium ppm ASTM D5185m <1	Aluminum	ppm	ASTM D5185m	>15	<1		
Tin	Lead	ppm	ASTM D5185m	>65	0		
Vanadium ppm ASTM D5185m <1 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 Barium ppm ASTM D5185m 0.4 2 Molybdenum ppm ASTM D5185m 0.5 2 Manganese ppm ASTM D5185m 0.4 0 Magnesium ppm ASTM D5185m 0.3 30 Calcium ppm ASTM D5185m 0.3 30 Phosphorus ppm ASTM D5185m 0 138 Zinc ppm ASTM D5185m 0 138 Sulfur ppm ASTM D5185m 320 348	Copper	ppm	ASTM D5185m	>65	2		
Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 Barium ppm ASTM D5185m 0.4 2 Molybdenum ppm ASTM D5185m 0.5 2 Manganese ppm ASTM D5185m 0.4 0 Magnesium ppm ASTM D5185m 0 1 Calcium ppm ASTM D5185m 0.3 30 Phosphorus ppm ASTM D5185m 0 138 Zinc ppm ASTM D5185m 320 348 Sulfur ppm ASTM D5185m >35 <1	Tin	ppm	ASTM D5185m	>10	0		
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 Barium ppm ASTM D5185m 0.4 2 Molybdenum ppm ASTM D5185m 0.5 2 Manganese ppm ASTM D5185m 0.4 0 Magnesium ppm ASTM D5185m 0.3 30 Calcium ppm ASTM D5185m 0.3 30 Phosphorus ppm ASTM D5185m 0 138 Zinc ppm ASTM D5185m 320 348 Sulfur ppm ASTM D5185m >35 <1	Vanadium	ppm	ASTM D5185m		<1		
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Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 0.5 2 Manganese ppm ASTM D5185m 0.4 0 Magnesium ppm ASTM D5185m 0 1 Calcium ppm ASTM D5185m 0.3 30 Phosphorus ppm ASTM D5185m 1376 547 Zinc ppm ASTM D5185m 0 138 Sulfur ppm ASTM D5185m 320 348 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 <1 Sodium ppm ASTM D5185m 20 0 Water % ASTM D6304 >0.1 0.107 FLUID DEGRADATION method limit/base	Boron	ppm	ASTM D5185m	0	0		
Manganese ppm ASTM D5185m 0.4 0 Magnesium ppm ASTM D5185m 0 1 Calcium ppm ASTM D5185m 0.3 30 Phosphorus ppm ASTM D5185m 1376 547 Zinc ppm ASTM D5185m 0 138 Sulfur ppm ASTM D5185m 320 348 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 <1	Barium	ppm	ASTM D5185m	0.4	2		
Magnesium ppm ASTM D5185m 0 1 Calcium ppm ASTM D5185m 0.3 30 Phosphorus ppm ASTM D5185m 1376 547 Zinc ppm ASTM D5185m 0 138 Sulfur ppm ASTM D5185m 320 348 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 <1 Sodium ppm ASTM D5185m 4 Potassium ppm ASTM D5185m >20 0 Water % ASTM D6304 >0.1 0.107 FLUID DEGRADATION method limit/base current history1 history2	Molyhdonum		10T11D=10=	0 5	_		
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Phosphorus ppm ASTM D5185m 1376 547 Zinc ppm ASTM D5185m 0 138 Sulfur ppm ASTM D5185m 320 348 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 <1 Sodium ppm ASTM D5185m 4 Potassium ppm ASTM D5185m >20 0 Water % ASTM D6304 >0.1 0.107 FLUID DEGRADATION method limit/base current history1 history2	•						
Zinc ppm ASTM D5185m 0 138 Sulfur ppm ASTM D5185m 320 348 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 <1 Sodium ppm ASTM D5185m 4 Potassium ppm ASTM D5185m >20 0 Water % ASTM D6304 >0.1 0.107 ppm ASTM D6304 >1000 1070 FLUID DEGRADATION method limit/base current history1 history2	Manganese	ppm	ASTM D5185m	0.4	0		
Sulfur ppm ASTM D5185m 320 348 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 <1	Manganese Magnesium	ppm	ASTM D5185m ASTM D5185m	0.4	0		
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 <1	Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0.4 0 0.3	0 1 30		
Silicon ppm ASTM D5185m >35 <1 Sodium ppm ASTM D5185m 4 Potassium ppm ASTM D5185m >20 0 Water % ASTM D6304 >0.1 0.107 ppm Water ppm ASTM D6304 >1000 1070 FLUID DEGRADATION method limit/base current history1 history2	Manganese Magnesium Calcium Phosphorus	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0.4 0 0.3 1376	0 1 30 547		
Sodium ppm ASTM D5185m 4 Potassium ppm ASTM D5185m >20 0 Water % ASTM D6304 >0.1 0.107 ppm Water ppm ASTM D6304 >1000 1070 FLUID DEGRADATION method limit/base current history1 history2	Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0.4 0 0.3 1376	0 1 30 547 138		
Potassium ppm ASTM D5185m >20 0 Water % ASTM D6304 >0.1 0.107 ppm ASTM D6304 >1000 1070 FLUID DEGRADATION method limit/base current history1 history2	Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0.4 0 0.3 1376 0 320	0 1 30 547 138 348		
Water % ASTM D6304 >0.1 0.107 ppm Water ppm ASTM D6304 >1000 1070 FLUID DEGRADATION method limit/base current history1 history2	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0.4 0 0.3 1376 0 320	0 1 30 547 138 348	 history1	 history2
ppm Water ppm ASTM D6304 >1000 1070 FLUID DEGRADATION method limit/base current history1 history2	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0.4 0 0.3 1376 0 320	0 1 30 547 138 348 current	 history1	 history2
FLUID DEGRADATION method limit/base current history1 history2	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	0.4 0 0.3 1376 0 320 limit/base >35	0 1 30 547 138 348 current <1	 history1	 history2
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0.4 0 0.3 1376 0 320 limit/base >35	0 1 30 547 138 348 current <1 4	 history1	history2
Acid Number (AN) mg KOH/g ASTM D8045 0.573 0.45	Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0.4 0 0.3 1376 0 320 limit/base >35 >20 >0.1	0 1 30 547 138 348 current <1 4 0	 history1	 history2
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D6304 ASTM D6304	0.4 0 0.3 1376 0 320 limit/base >35 >20 >0.1 >1000	0 1 30 547 138 348 current <1 4 0 0.107	 history1	 history2



OIL ANALYSIS REPORT







Certificate 12367

Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Lab Number : 06148823

: UCH06148823 Unique Number : 10978901

Test Package : IND 2 (Additional Tests: KF)

Received **Tested** Diagnosed

: 15 Apr 2024 : 17 Apr 2024

: 17 Apr 2024 - Sean Felton

US 23237 Contact: RANDY BEAUCHAMP randy.beauchamp@tate.com

T: (757)214-6541 F: (804)743-0415

TATE ENGINEERING

RICHMOND, VA

8131 VIRGINIA PINE CT

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)