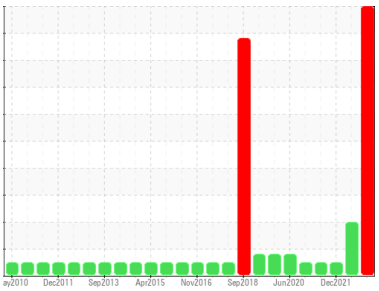
PROBLEM SUMMARY

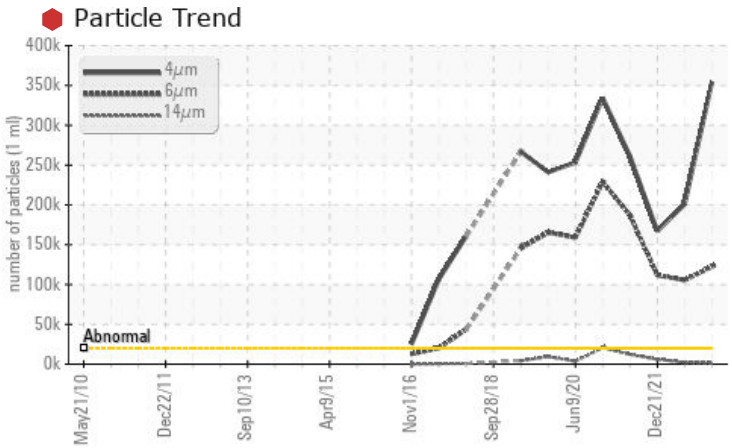
Sample Rating Trend



ISO

Area
MILL
Machine Id
250.0200U DRY SHAVINGS SILO
Component
Upper Gearbox
Fluid
MOBIL SHC 634 (30 GAL)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

Check seals and/or filters for points of contaminant entry. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation. No other corrective action is recommended at this time. Analytical Ferrography: Ferrogram is showing high levels of contamination. As stated in the routine analysis, it is suggested that you investigate and contain the contamination ingression source. Once the contamination is contained, suggest cleaning the lubricant - preferably with existing filtration or a filter cart, or a fluid flush as a second option. Wear debris currently is not critical but there are signs of a developing fault; if vibration is not picking anything up presently it will in the near future if something is not done to address the contamination. source and existing contaminant load in the fluid. As a secondary note, check with the system manufacturer and your site engineers and verify that this gearbox does not require an EP gear oil due to shock loading, as this oil is not fortified against heavy shock loading and that may be occurring.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	ABNORMAL	NORMAL
Ferrous Rubbing	Scale 0-10	*ASTM D7684		5		
Ferrous Cutting	Scale 0-10	*ASTM D7684		3		
Ferrous Rolling	Scale 0-10	*ASTM D7684		5		
Ferrous Red Oxides	Scale 0-10	*ASTM D7684		4		
Other	Scale 0-10	*ASTM D7684		5		
Particles >4µm		ASTM D7647	>20000	**354411**	200958	167153
Particles >6µm		ASTM D7647	>5000	**122515**	105525	111699
Particles >14µm		ASTM D7647	>640	**1192**	2231	6025
Oil Cleanliness		ISO 4406 (c)	>21/19/16	**26/24/17**	25/24/18	25/24/20

Customer Id: ARABEN
Sample No.: WC0701266
Lab Number: 05630846
Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Aaron Black +1
aaron.black@wearcheck.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 Filter	MISSED	Jan 11 2023	?	We recommend you service the filters on this component.
Resample	MISSED	Jan 11 2023	?	Resample in 30-45 days to monitor this situation.
Check Breathers	MISSED	Jan 11 2023	?	The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather.
Check Seals	MISSED	Jan 11 2023	?	Check seals and/or filters for points of contaminant entry.

HISTORICAL DIAGNOSIS

20 Jun 2022 Diag: Doug Bogart

ISO

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor.All component wear rates are normal. There is a high 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.

view report

21 Dec 2021 Diag: Wes Davis

NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. The water content is negligible. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

21 Jun 2021 Diag: Wes Davis

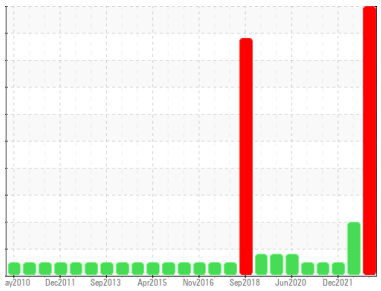
NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. The water content is negligible. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
MILL
Machine Id
250.0200U DRY SHAVINGS SILO
Component
Upper Gearbox
Fluid
MOBIL SHC 634 (30 GAL)

DIAGNOSIS

Recommendation

Check seals and/or filters for points of contaminant entry. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation. No other corrective action is recommended at this time. Analytical Ferrography: Ferrogram is showing high levels of contamination. As stated in the routine analysis, it is suggested that you investigate and contain the contamination ingression source. Once the contamination is contained, suggest cleaning the lubricant - preferably with existing filtration or a filter cart, or a fluid flush as a second option. Wear debris currently is not critical but there are signs of a developing fault; if vibration is not picking anything up presently it will in the near future if something is not done to address the contamination. source and existing contaminant load in the fluid. As a secondary note, check with the system manufacturer and your site engineers and verify that this gearbox does not require an EP gear oil due to shock loading, as this oil is not fortified against heavy shock loading and that may be occurring.

Wear

Wear particle analysis indicates that the ferrous rolling and ferrous red oxides and ferrous rubbing particles are abnormal. Wear particle analysis indicates that the ferrous cutting particles are marginal.

Contaminants

Oil Cleanliness are severely high. Wear particle analysis indicates that the other particles are abnormal. There is a high amount of particulates present in the oil.

Oil Condition

The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and excessive contamination.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0701266**	WC0701274	WC62107022
Sample Date		Client Info		**22 Aug 2022**	20 Jun 2022	21 Dec 2021
Machine Age	hrs	Client Info		**0**	0	---
Oil Age	hrs	Client Info		**0**	0	---
Oil Changed		Client Info		**Not Changd**	Not Changd	N/A
Sample Status				**SEVERE**	ABNORMAL	NORMAL

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184		**53**	---	53
Iron	ppm	ASTM D5185m	>200	**105**	43	61
Chromium	ppm	ASTM D5185m	>15	**1**	<1	1
Nickel	ppm	ASTM D5185m	>15	**0**	<1	0
Titanium	ppm	ASTM D5185m		**0**	0	---
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>25	**<1**	0	0
Lead	ppm	ASTM D5185m	>100	**0**	0	0
Copper	ppm	ASTM D5185m	>200	**16**	6	13
Tin	ppm	ASTM D5185m	>25	**2**	1	1
Vanadium	ppm	ASTM D5185m		**0**	0	---
Cadmium	ppm	ASTM D5185m		**0**	0	---

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**0**	1	0
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**0**	0	0
Manganese	ppm	ASTM D5185m		**<1**	<1	---
Magnesium	ppm	ASTM D5185m		**0**	0	0
Calcium	ppm	ASTM D5185m		**<1**	0	1
Phosphorus	ppm	ASTM D5185m		**424**	213	341
Zinc	ppm	ASTM D5185m		**<1**	<1	3
Sulfur	ppm	ASTM D5185m		**16**	13	---

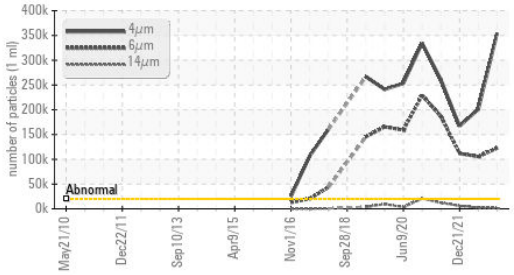
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	**22**	10	20
Sodium	ppm	ASTM D5185m		**0**	0	0
Potassium	ppm	ASTM D5185m	>20	**0**	0	0

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	**354411**	200958	167153
Particles >6µm		ASTM D7647	>5000	**122515**	105525	111699
Particles >14µm		ASTM D7647	>640	**1192**	2231	6025
Particles >21µm		ASTM D7647	>160	**122**	177	---
Particles >38µm		ASTM D7647	>40	**9**	7	---
Particles >71µm		ASTM D7647	>10	**0**	1	---
Oil Cleanliness		ISO 4406 (c)	>21/19/16	**26/24/17**	25/24/18	25/24/20

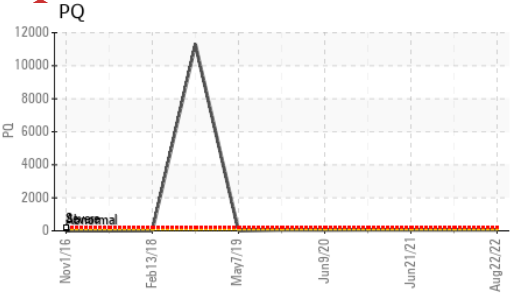
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.36**	0.38	0.42

OIL ANALYSIS REPORT

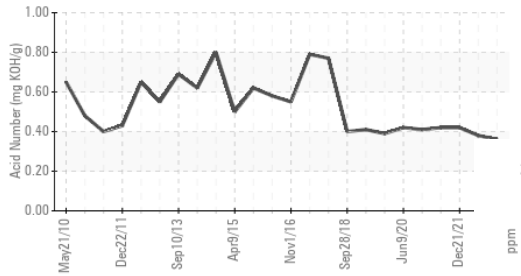
Particle Trend



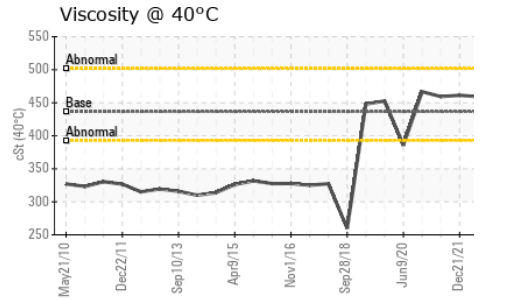
PQ



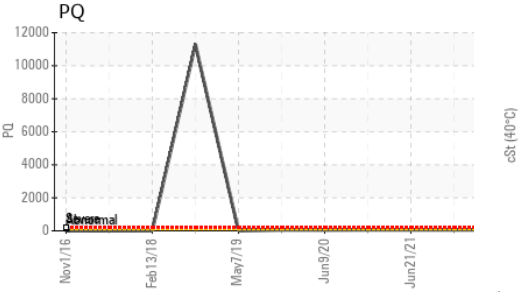
Acid Number



Viscosity @ 40°C

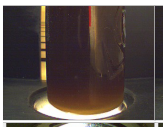
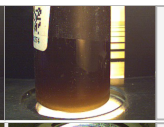
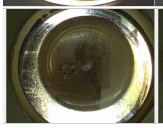
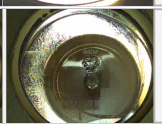


PQ



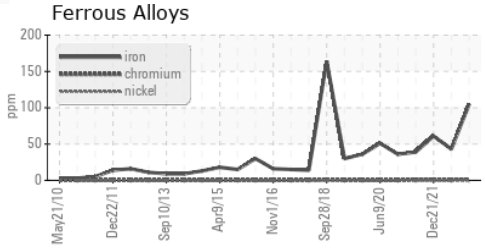
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	---
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	---
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	---
Silt	scalar	*Visual	NONE	**NONE**	NONE	---
Debris	scalar	*Visual	NONE	**NONE**	NONE	---
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	---
Appearance	scalar	*Visual	NORML	**NORML**	NORML	---
Odor	scalar	*Visual	NORML	**NORML**	NORML	---
Emulsified Water	scalar	*Visual	>0.2	**NEG**	NEG	---
Free Water	scalar	*Visual		**NEG**	NEG	---

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	436.4	**460**	459	461.3

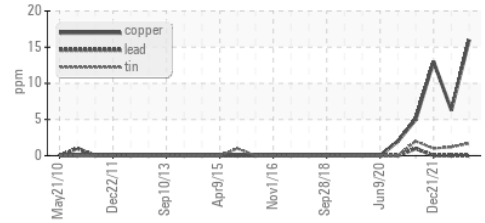
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					*no image*
Bottom					*no image*

GRAPHS

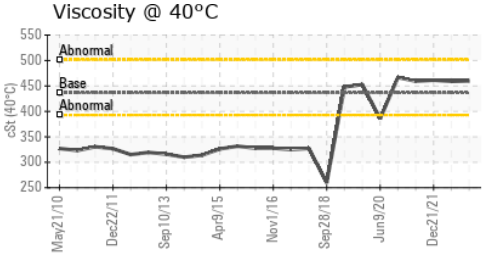
Ferrous Alloys



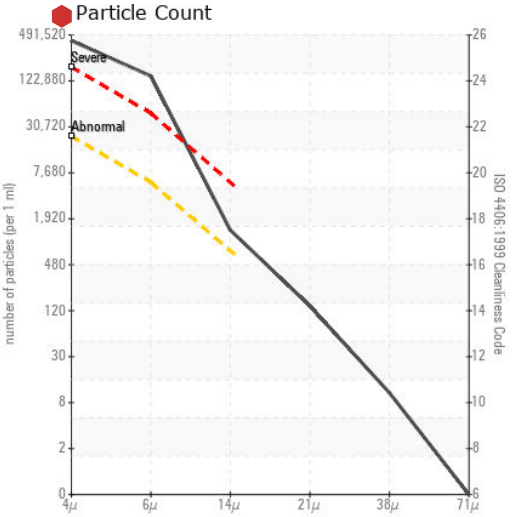
Non-ferrous Metals



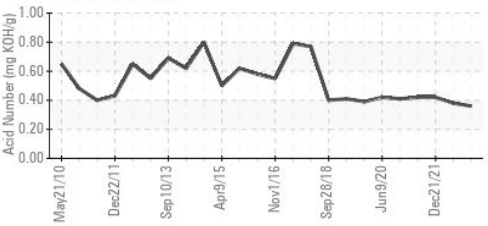
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0701266 **Received** : 31 Aug 2022
Lab Number : 05630846 **Diagnosed** : 13 Sep 2022
Unique Number : 10115367 **Diagnostician** : Aaron Black
Test Package : IND 2 (Additional Tests: A-FERR, PQ, PrtCount)

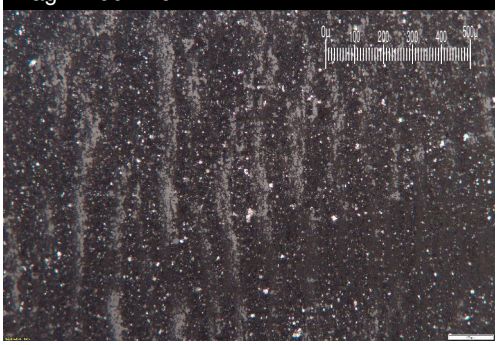
To discuss this sample report, contact Customer Service at 1-800-237-1369.
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

ARAUCO - BENNETTSVILLE
582 WILLIAMETTE ROAD HWY 912
BENNETTSVILLE, SC
US 29512
Contact: JEFF SCOTT
jeff.scott@arauco.com
T: (843)454-9635
F:

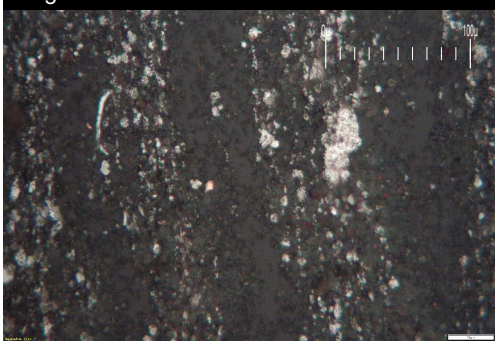
FERROGRAPHY REPORT

Area
MILL
Machine Id
250.0200U DRY SHAVINGS SILO
Component
Upper Gearbox
Fluid
MOBIL SHC 634 (30 GAL)

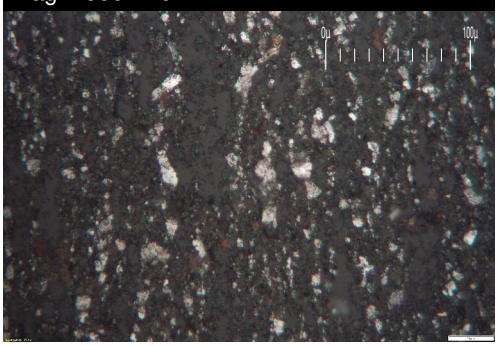
Magn: 100x Illum: RW



Magn: 500x Illum: RW



Magn: 500x Illum: RW



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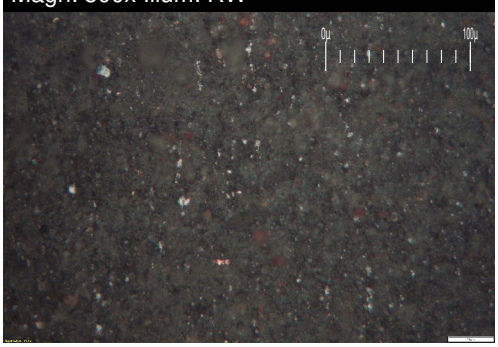

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	*ASTM D7684		5		
Ferrous Sliding	Scale 0-10	*ASTM D7684				
Ferrous Cutting	Scale 0-10	*ASTM D7684		3		
Ferrous Rolling	Scale 0-10	*ASTM D7684		5		
Ferrous Break-in	Scale 0-10	*ASTM D7684				
Ferrous Spheres	Scale 0-10	*ASTM D7684				
Ferrous Black Oxides	Scale 0-10	*ASTM D7684				
Ferrous Red Oxides	Scale 0-10	*ASTM D7684		4		
Ferrous Corrosive	Scale 0-10	*ASTM D7684				
Ferrous Other	Scale 0-10	*ASTM D7684				
Nonferrous Rubbing	Scale 0-10	*ASTM D7684				
Nonferrous Sliding	Scale 0-10	*ASTM D7684				
Nonferrous Cutting	Scale 0-10	*ASTM D7684				
Nonferrous Rolling	Scale 0-10	*ASTM D7684				
Nonferrous Other	Scale 0-10	*ASTM D7684				
Carbonaceous Material	Scale 0-10	*ASTM D7684				
Lubricant Degradation	Scale 0-10	*ASTM D7684				
Sand/Dirt	Scale 0-10	ASTM D7684				
Fibres	Scale 0-10	*ASTM D7684				
Spheres	Scale 0-10	*ASTM D7684				
Other	Scale 0-10	*ASTM D7684		5		

WEAR

Wear particle analysis indicates that the ferrous rolling and ferrous red oxides and ferrous rubbing particles are abnormal. Wear particle analysis indicates that the ferrous cutting particles are marginal.

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