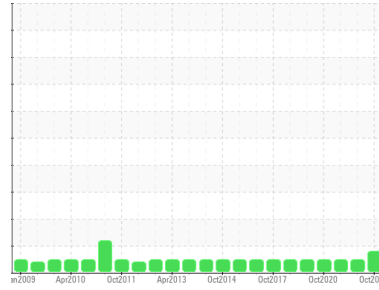




PROBLEM SUMMARY

Sample Rating Trend

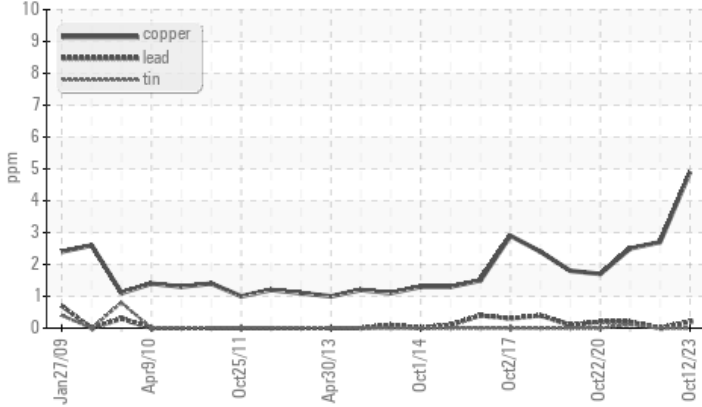


Area
Saugen Shores SP-17701
 Machine ID
04K09A

Component
Wind Turbine Gearbox
 Fluid
MOBIL MOBILGEAR SHC XMP 320 (260 LTR)

COMPONENT CONDITION SUMMARY

▲ Non-ferrous Metals



RECOMMENDATION

Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS

Sample Status			ATTENTION	NORMAL	NORMAL	
Copper	ppm	ASTM D5185(m)	>5	▲ 5	3	2

Customer Id: VESTAS
 Sample No.: WC0835297
 Lab Number: 02591545
 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Bill Quesnel CLS,OMA II,MLA-III,LLA-I +1
 (289)291-4641 x4641
Bill.Quesnel@wearcheck.com

To change component or sample information:
 Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS

06 Mar 2023 Diag: Kevin Marson

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



20 Oct 2021 Diag: Kevin Marson

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



22 Oct 2020 Diag: Kevin Marson

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

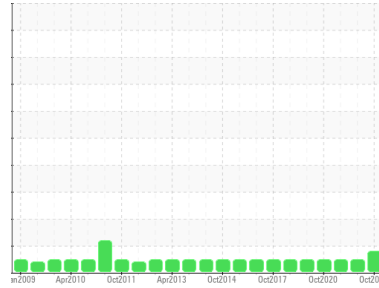
view report





OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Area
Saugen Shores SP-17701
 Machine ID
04K09A

Component
Wind Turbine Gearbox
 Fluid
MOBIL MOBILGEAR SHC XMP 320 (260 LTR)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Copper ppm levels are noted. All other component wear rates are normal.

Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable.

Fluid Condition

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

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0835297	WC	WC0546336
Sample Date	Client Info		12 Oct 2023	06 Mar 2023	20 Oct 2021
Machine Age	yrs	Client Info	15	0	13
Oil Age	yrs	Client Info	15	0	13
Oil Changed	Client Info		Not Changed	N/A	Not Changed
Sample Status			ATTENTION	NORMAL	NORMAL

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*	>50	0	0	0
Iron	ppm	ASTM D5185(m)	>75	22	18
Chromium	ppm	ASTM D5185(m)	>5	0	0
Nickel	ppm	ASTM D5185(m)	>10	0	<1
Titanium	ppm	ASTM D5185(m)	>10	0	<1
Silver	ppm	ASTM D5185(m)		<1	0
Aluminum	ppm	ASTM D5185(m)	>10	0	0
Lead	ppm	ASTM D5185(m)	>15	<1	0
Copper	ppm	ASTM D5185(m)	>5	▲ 5	3
Tin	ppm	ASTM D5185(m)	>10	0	<1
Antimony	ppm	ASTM D5185(m)	>5	0	0
Vanadium	ppm	ASTM D5185(m)		0	0
Beryllium	ppm	ASTM D5185(m)		0	0
Cadmium	ppm	ASTM D5185(m)		0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	1	<1
Barium	ppm	ASTM D5185(m)		0	0
Molybdenum	ppm	ASTM D5185(m)	0	0	0
Manganese	ppm	ASTM D5185(m)		0	0
Magnesium	ppm	ASTM D5185(m)		0	0
Calcium	ppm	ASTM D5185(m)	0	0	0
Phosphorus	ppm	ASTM D5185(m)	485	328	361
Zinc	ppm	ASTM D5185(m)	0	33	12
Sulfur	ppm	ASTM D5185(m)		3701	3694
Lithium	ppm	ASTM D5185(m)		<1	<1

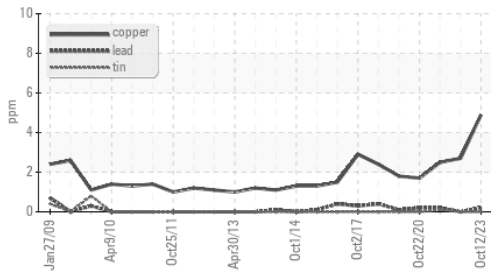
CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>40	11	14
Sodium	ppm	ASTM D5185(m)	>10	<1	<1
Potassium	ppm	ASTM D5185(m)	>20	<1	<1
Water	%	ASTM D6304*	>0.02	0.008	0.006
ppm Water	ppm	ASTM D6304*	>200	85.9	61.7

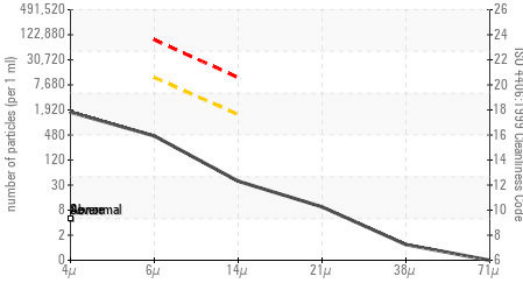
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*		0	0
Nitration	Abs/cm	ASTM D7624*		2.1	2.5
Sulfation	Abs/.1mm	ASTM D7415*		47.9	27.9

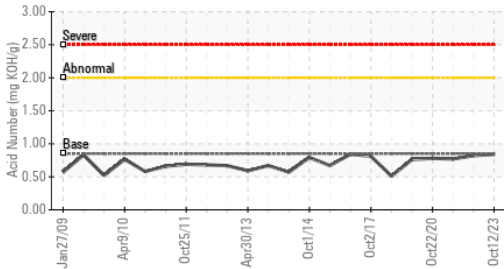
▲ Non-ferrous Metals



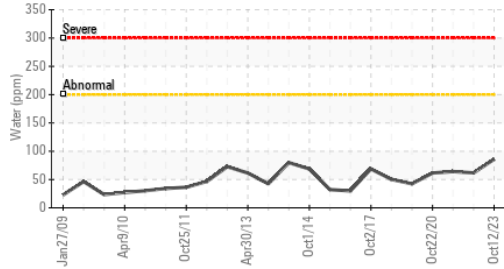
Particle Count



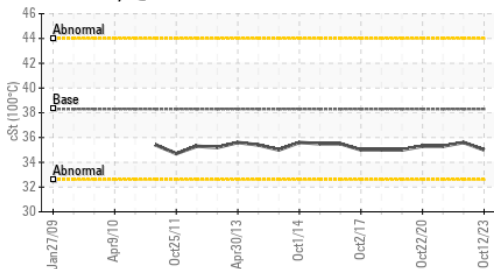
Acid Number



Water (KF)



Viscosity @ 100°C



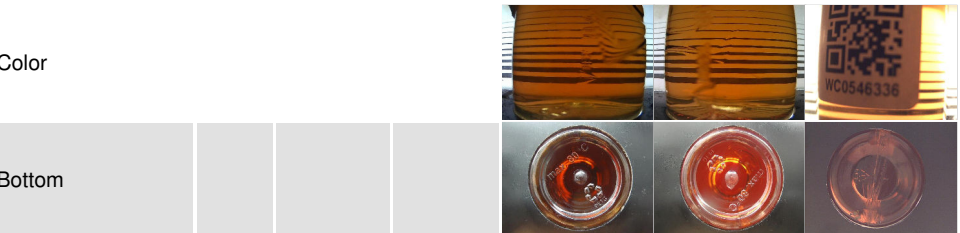
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		1483	5977	2097
Particles >6µm	ASTM D7647	>10000	400	1628	400
Particles >14µm	ASTM D7647	>1300	33	72	31
Particles >21µm	ASTM D7647	>320	8	15	9
Particles >38µm	ASTM D7647	>80	1	2	1
Particles >71µm	ASTM D7647	>20	0	0	0
Oil Cleanliness	ISO 4406 (c)	>--/20/17	18/16/12	20/18/13	18/16/12

FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm ASTM D7414*		55.4	24.4	53.3
Acid Number (AN)	mg KOH/g ASTM D974*	0.85	0.84	0.82	0.77

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*	>0.02	NEG	NEG	NEG
Free Water	scalar Visual*		NEG	NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt ASTM D7279(m)	335	311	313	312
Visc @ 100°C	cSt ASTM D7279(m)	38.3	35.0	35.6	35.3
Viscosity Index (VI)	Scale ASTM D2270*	164	158	160	159

SAMPLE IMAGES



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Vestas American Wind Technology Inc.
Sample No. : WC0835297 **Received** : 24 Oct 2023
Lab Number : **02591545** **Diagnosed** : 26 Oct 2023
Unique Number : 5668624 **Diagnostician** : Bill Quesnel
Test Package : IND 2 (Additional Tests: FT-IR, KF, KV100, PQ, TAN Man, VI)

To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.

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