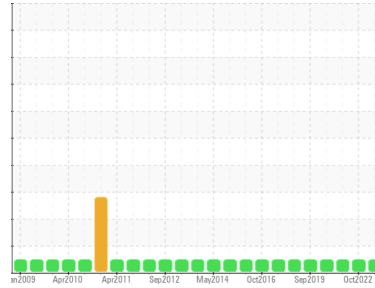




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area
Saugen Shores SP-17701
 Machine Id
04K04

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. 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		WC0835239	WC0632912	WC0419017
Sample Date	Client Info		03 Oct 2023	04 Oct 2022	07 Oct 2021
Machine Age	Client Info		15	14	13
Oil Age	Client Info		15	14	13
Oil Changed	Client Info		Not Changed	Not Changed	N/A
Sample Status			NORMAL	NORMAL	NORMAL

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*	>50	0	0	0
Iron	ppm ASTM D5185(m)	>75	16	14	16
Chromium	ppm ASTM D5185(m)	>5	0	0	0
Nickel	ppm ASTM D5185(m)	>10	0	0	<1
Titanium	ppm ASTM D5185(m)	>10	0	0	0
Silver	ppm ASTM D5185(m)		<1	0	0
Aluminum	ppm ASTM D5185(m)	>10	0	<1	<1
Lead	ppm ASTM D5185(m)	>15	0	<1	0
Copper	ppm ASTM D5185(m)	>5	5	4	2
Tin	ppm ASTM D5185(m)	>10	0	0	0
Antimony	ppm ASTM D5185(m)	>5	0	<1	0
Vanadium	ppm ASTM D5185(m)		0	0	0
Beryllium	ppm ASTM D5185(m)		0	0	0
Cadmium	ppm ASTM D5185(m)		0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm ASTM D5185(m)	0	1	<1	1
Barium	ppm ASTM D5185(m)		<1	0	0
Molybdenum	ppm ASTM D5185(m)	0	0	0	0
Manganese	ppm ASTM D5185(m)		0	0	0
Magnesium	ppm ASTM D5185(m)		0	0	0
Calcium	ppm ASTM D5185(m)	0	<1	0	<1
Phosphorus	ppm ASTM D5185(m)	485	311	349	345
Zinc	ppm ASTM D5185(m)	0	14	11	8
Sulfur	ppm ASTM D5185(m)		3522	3735	3615
Lithium	ppm ASTM D5185(m)		<1	<1	<1

CONTAMINANTS

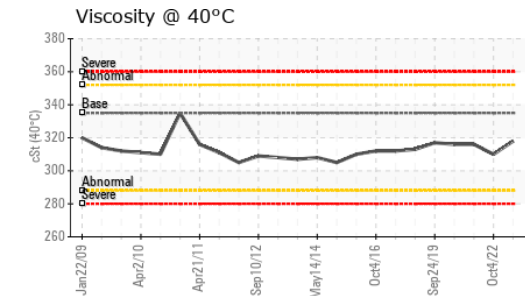
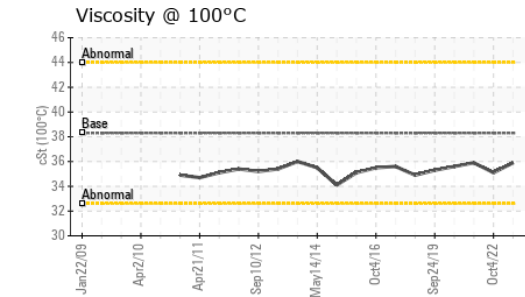
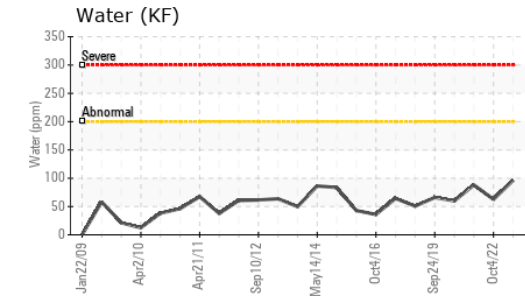
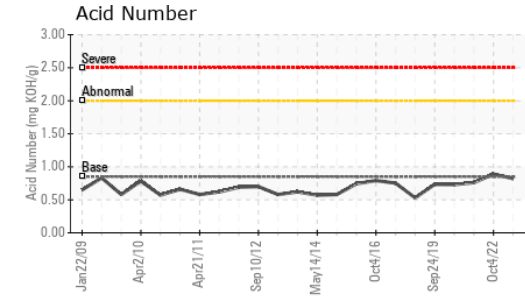
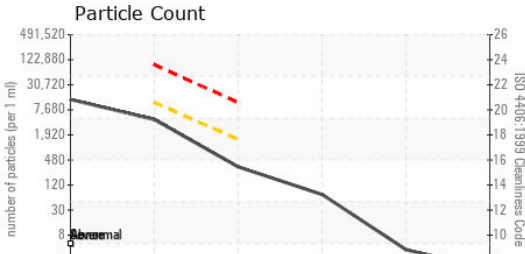
	method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185(m)	>40	9	7	9
Sodium	ppm ASTM D5185(m)	>10	<1	0	<1
Potassium	ppm ASTM D5185(m)	>20	<1	<1	<1
Water	% ASTM D6304*	>0.02	0.009	0.006	0.008
ppm Water	ppm ASTM D6304*	>200	96.3	62.6	88.1

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	% ASTM D7844*		0	0	0
Nitration	Abs/cm ASTM D7624*		2.1	2.5	2.2
Sulfation	Abs/.1mm ASTM D7415*		48.0	22.4	47.6



OIL ANALYSIS REPORT



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Vestas American Wind Technology Inc.
Sample No. : WC0835239 **Received** : 20 Oct 2023
Lab Number : 02590753 **Diagnosed** : 23 Oct 2023
Unique Number : 5659819 **Diagnostician** : Kevin Marson
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.

FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		11871	6559	973
Particles >6µm	ASTM D7647	>10000	3932	849	181
Particles >14µm	ASTM D7647	>1300	289	32	16
Particles >21µm	ASTM D7647	>320	63	11	4
Particles >38µm	ASTM D7647	>80	3	1	0
Particles >71µm	ASTM D7647	>20	1	0	0
Oil Cleanliness	ISO 4406 (c)	>--/20/17	21/19/15	20/17/12	17/15/11

FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs./1mm	ASTM D7414*	55.0	17.1	53.5
Acid Number (AN)	mg KOH/g	ASTM D974*	0.82	0.89	0.76

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*	VLITE	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*	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)	318	310	316
Visc @ 100°C	cSt	ASTM D7279(m)	35.9	35.1	35.9
Viscosity Index (VI)	Scale	ASTM D2270*	159	159	160

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					