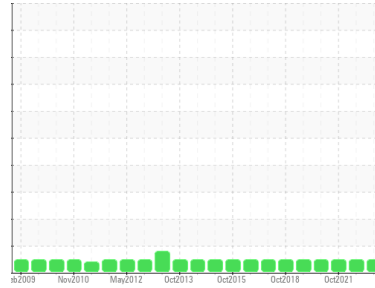




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area
Saugeen Shores SP-17701

Machine ID
04K12

Component
Wind Turbine Gearbox

Fluid
MOBIL MOBILGEAR SHC XMP 320 (260 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 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		WC0835302	WC0632919	WC0419016
Sample Date	Client Info		16 Oct 2023	14 Oct 2022	26 Oct 2021
Machine Age	yrs	Client Info	15	14	13
Oil Age	yrs	Client Info	15	14	13
Oil Changed	Client Info		N/A	Not Changd	Not Changd
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	20	13	10
Chromium	ppm	ASTM D5185(m) >5	0	0	0
Nickel	ppm	ASTM D5185(m) >10	<1	<1	0
Titanium	ppm	ASTM D5185(m) >10	0	0	0
Silver	ppm	ASTM D5185(m)	<1	0	0
Aluminum	ppm	ASTM D5185(m) >10	0	0	0
Lead	ppm	ASTM D5185(m) >15	<1	<1	<1
Copper	ppm	ASTM D5185(m) >5	4	5	3
Tin	ppm	ASTM D5185(m) >10	0	0	<1
Antimony	ppm	ASTM D5185(m) >5	0	0	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)	0	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	0	0	<1
Phosphorus	ppm	ASTM D5185(m) 485	329	359	383
Zinc	ppm	ASTM D5185(m) 0	32	12	6
Sulfur	ppm	ASTM D5185(m)	3744	3721	3872
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

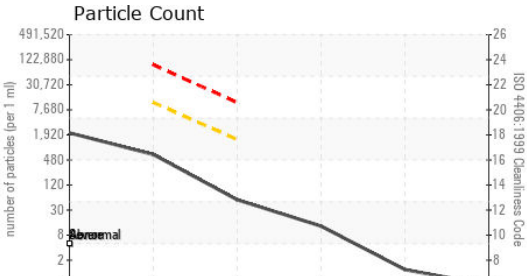
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >40	12	18	16
Sodium	ppm	ASTM D5185(m) >10	<1	<1	<1
Potassium	ppm	ASTM D5185(m) >20	<1	<1	<1
Water	%	ASTM D6304* >0.02	0.009	0.007	0.007
ppm Water	ppm	ASTM D6304* >200	91.1	71.4	72.3

INFRA-RED

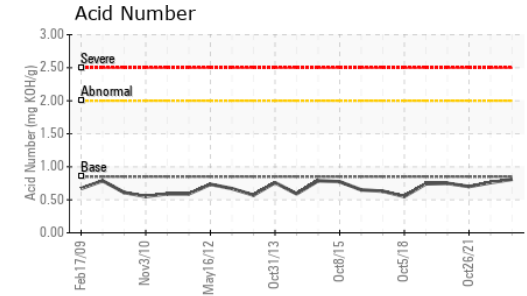
	method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	0	0	0
Nitration	Abs/cm	ASTM D7624*	2.1	2.4	2.1
Sulfation	Abs/.1mm	ASTM D7415*	48.0	25.6	47.0



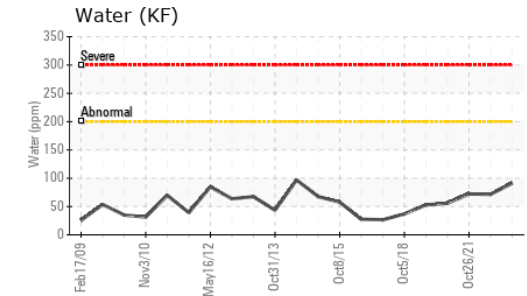
OIL ANALYSIS REPORT



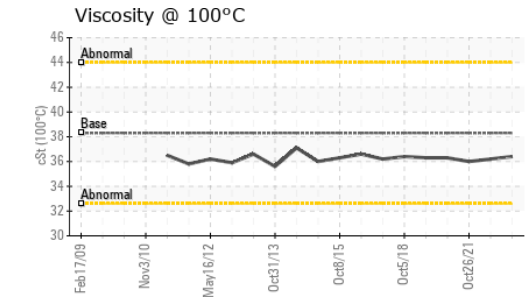
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		1880	1735	2126
Particles >6µm	ASTM D7647	>10000	570	390	609
Particles >14µm	ASTM D7647	>1300	47	32	89
Particles >21µm	ASTM D7647	>320	11	10	32
Particles >38µm	ASTM D7647	>80	1	1	5
Particles >71µm	ASTM D7647	>20	0	0	0
Oil Cleanliness	ISO 4406 (c)	>--/20/17	18/16/13	18/16/12	18/16/14



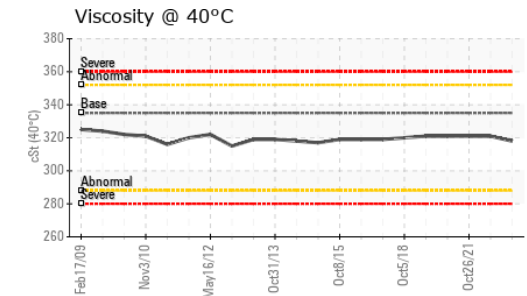
FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm ASTM D7414*		55.4	21.7	55.3
Acid Number (AN)	mg KOH/g ASTM D974*	0.85	0.81	0.76	0.70



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	VLITE
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	318	321	321
Visc @ 100°C	cSt ASTM D7279(m)	38.3	36.4	36.2	36.0
Viscosity Index (VI)	Scale ASTM D2270*	164	162	160	159



SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **Vestas American Wind Technology Inc.**
Sample No. : WC0835302 **Received** : 24 Oct 2023
Lab Number : **02591544** **Diagnosed** : 26 Oct 2023
Unique Number : 5668623 **Diagnostician** : Kevin Marson
Test Package : IND 2 (Additional Tests: FT-IR, KF, KV100, PQ, TAN Man, VI)

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 F: (519)368-7535

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.