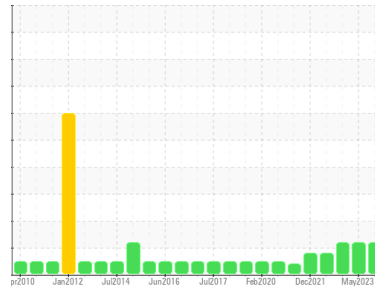




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Area
Ravenswood SP-24224
 Machine Id
T6 (S/N 36260)

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

DIAGNOSIS

Recommendation

The oil is near the end of its useful service life, recommend schedule an oil change. We recommend an early resample to monitor this condition.

Wear

Iron ppm levels are abnormal. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion.

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

Phosphorus ppm levels are abnormally low. The AN level is acceptable for this fluid.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0863460	WC0783112	WC0632655
Sample Date	Client Info		19 Dec 2023	30 May 2023	05 Dec 2022
Machine Age	mths	Client Info	0	0	0
Oil Age	mths	Client Info	0	0	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			ABNORMAL	ABNORMAL	ABNORMAL

WEAR METALS

	method	limit/base	current	history1	history2	
PQ	ASTM D8184*	>50	0	0	0	
Iron	ppm	ASTM D5185(m)	>75	▲ 92	▲ 93	▲ 78
Chromium	ppm	ASTM D5185(m)	>5	<1	<1	<1
Nickel	ppm	ASTM D5185(m)	>10	<1	<1	<1
Titanium	ppm	ASTM D5185(m)	>10	0	0	0
Silver	ppm	ASTM D5185(m)		0	0	0
Aluminum	ppm	ASTM D5185(m)	>10	<1	0	0
Lead	ppm	ASTM D5185(m)	>15	<1	0	0
Copper	ppm	ASTM D5185(m)	>5	2	2	2
Tin	ppm	ASTM D5185(m)	>10	0	0	0
Antimony	ppm	ASTM D5185(m)	>5	0	0	<1
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	
Barium	ppm	ASTM D5185(m)		0	0	
Molybdenum	ppm	ASTM D5185(m)	0	0	0	
Manganese	ppm	ASTM D5185(m)		0	<1	
Magnesium	ppm	ASTM D5185(m)		<1	0	
Calcium	ppm	ASTM D5185(m)	0	<1	<1	
Phosphorus	ppm	ASTM D5185(m)	485	▲ 247	▲ 276	▲ 262
Zinc	ppm	ASTM D5185(m)	0	9	11	10
Sulfur	ppm	ASTM D5185(m)		3328	3388	3149
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m)	>40	2	5	2
Sodium	ppm	ASTM D5185(m)	>10	0	<1	<1
Potassium	ppm	ASTM D5185(m)	>20	<1	<1	<1
Water	%	ASTM D6304*	>0.02	0.005	0.006	0.004
ppm Water	ppm	ASTM D6304*	>200	51	62.1	41.5

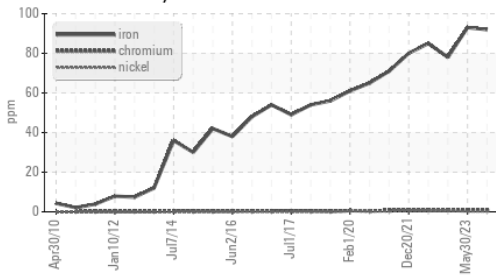
INFRA-RED

	method	limit/base	current	history1	history2	
Soot %	%	ASTM D7844*		0	0	0
Nitration	Abs/cm	ASTM D7624*		2.2	2.4	2.4
Sulfation	Abs/.1mm	ASTM D7415*		48.1	48.7	25.9

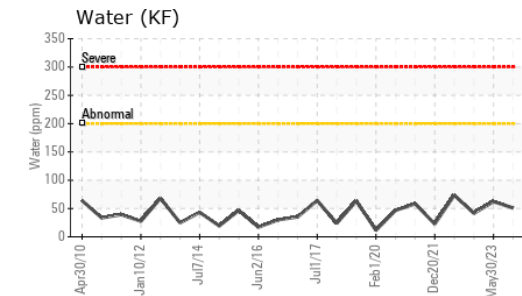
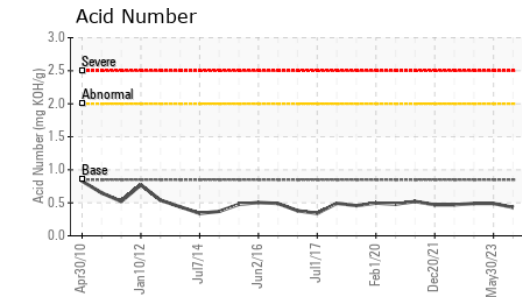
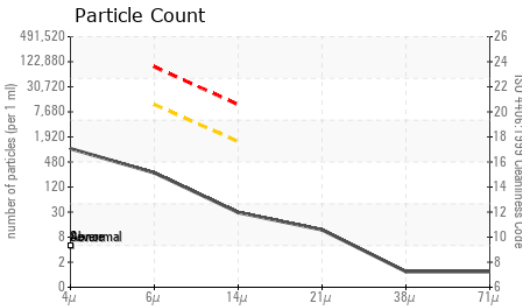
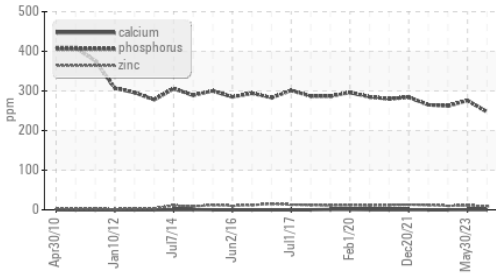


OIL ANALYSIS REPORT

▲ Ferrous Alloys



▲ Additives



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Vestas American Wind Technology Inc.
Sample No. : WC0863460 **Received** : 12 Jan 2024
Lab Number : 02608638 **Diagnosed** : 16 Jan 2024
Unique Number : 5709724 **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		881	1721	4692
Particles >6µm	ASTM D7647	>10000	232	422	700
Particles >14µm	ASTM D7647	>1300	26	45	24
Particles >21µm	ASTM D7647	>320	10	16	8
Particles >38µm	ASTM D7647	>80	1	1	1
Particles >71µm	ASTM D7647	>20	1	0	0
Oil Cleanliness	ISO 4406 (c)	>--/20/17	17/15/12	18/16/13	19/17/12

FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs./1mm ASTM D7414*		55.3	55.0	22.6
Acid Number (AN)	mg KOH/g ASTM D974*	0.85	0.43	0.49	0.49

VISUAL	method	limit/base	current	history1	history2
White Metal	scalar Visual*	NONE	NONE	NONE	VLITE
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	327	326	328
Visc @ 100°C	cSt ASTM D7279(m)	38.3	36.8	37.0	37.2
Viscosity Index (VI)	Scale ASTM D2270*	164	160	161	162

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

