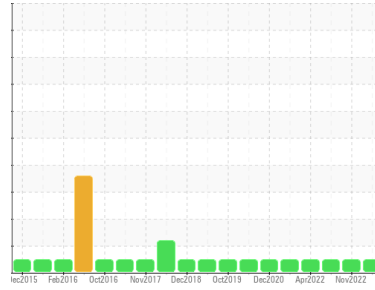




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area
FAIRWIND [200005318]
 Machine Id
08WEA84132 (S/N 72802187756)
 Component
Wind Turbine Gearbox
 Fluid
CASTROL OPTIGEAR SYNTHETIC X 320 (--- LTR)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the component. The amount and size of particulates present in the system 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	NX004203	NX010424	NX05620715	
Sample Date	Client Info	06 Mar 2023	14 Nov 2022	17 Aug 2022	
Machine Age	hrs	Client Info	57086	54541	0
Oil Age	hrs	Client Info	57086	54541	0
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	>80	20	17	12	
Iron	ppm	ASTM D5185m	>150	33	30	22
Chromium	ppm	ASTM D5185m	>5	0	<1	<1
Nickel	ppm	ASTM D5185m	>10	0	0	0
Titanium	ppm	ASTM D5185m	>10	0	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>10	<1	0	<1
Lead	ppm	ASTM D5185m	>20	0	0	<1
Copper	ppm	ASTM D5185m	>50	<1	<1	<1
Tin	ppm	ASTM D5185m	>10	0	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0

ADDITIVES

method	limit/base	current	history1	history2		
Boron	ppm	ASTM D5185m		0	39	<1
Barium	ppm	ASTM D5185m		0	2	1
Molybdenum	ppm	ASTM D5185m	1150	587	619	627
Manganese	ppm	ASTM D5185m		1	<1	<1
Magnesium	ppm	ASTM D5185m		8	7	6
Calcium	ppm	ASTM D5185m	2000	1174	1237	1200
Phosphorus	ppm	ASTM D5185m	400	268	307	295
Zinc	ppm	ASTM D5185m	0	0	1	0
Sulfur	ppm	ASTM D5185m	1850	1283	1898	1539

CONTAMINANTS

method	limit/base	current	history1	history2		
Silicon	ppm	ASTM D5185m	>50	8	8	8
Sodium	ppm	ASTM D5185m	>20	3	5	3
Potassium	ppm	ASTM D5185m	>20	0	<1	0
Water	%	ASTM D6304	>0.05	0.011	0.011	0.029
ppm Water	ppm	ASTM D6304	>500	119.7	118.6	291.4

FLUID CLEANLINESS

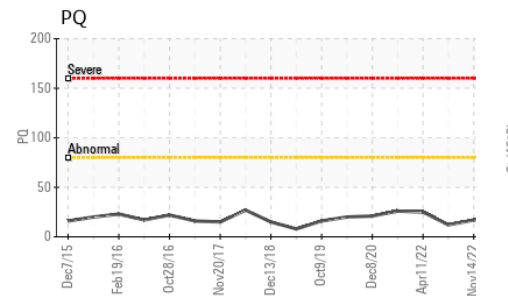
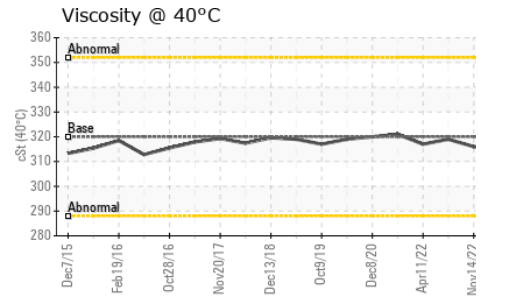
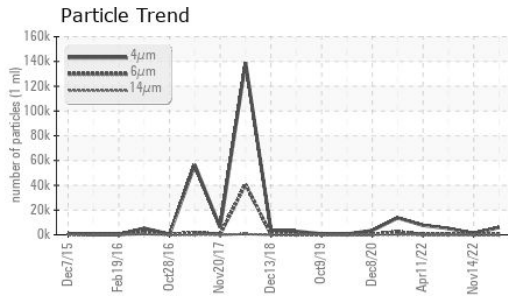
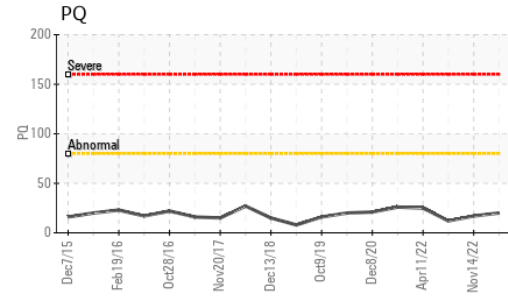
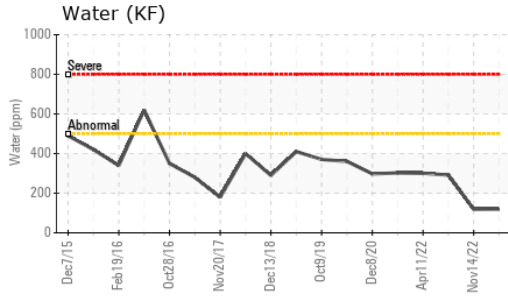
method	limit/base	current	history1	history2	
Particles >4µm	ASTM D7647		6023	1066	5120
Particles >6µm	ASTM D7647	>2500	335	102	338
Particles >14µm	ASTM D7647	>320	9	7	85
Particles >21µm	ASTM D7647	>80	3	1	76
Particles >38µm	ASTM D7647	>20	0	0	7
Particles >71µm	ASTM D7647	>4	0	0	0
Oil Cleanliness	ISO 4406 (c)	>--/18/15	20/16/10	17/14/10	20/16/14

FLUID DEGRADATION

method	limit/base	current	history1	history2		
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	0.27	0.80	0.14



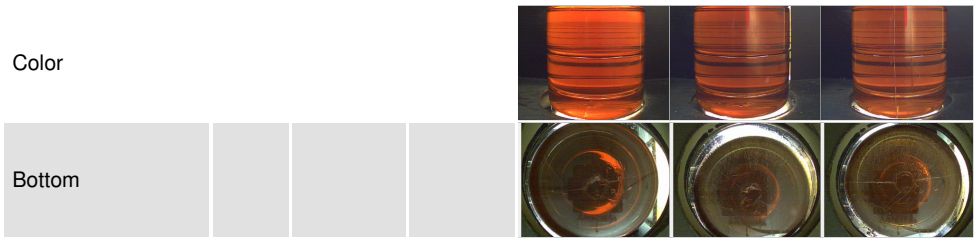
OIL ANALYSIS REPORT



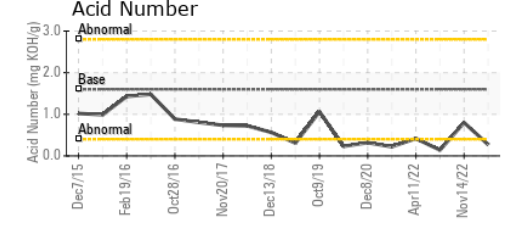
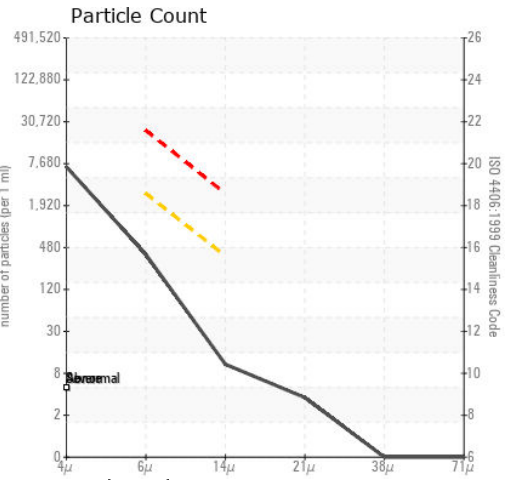
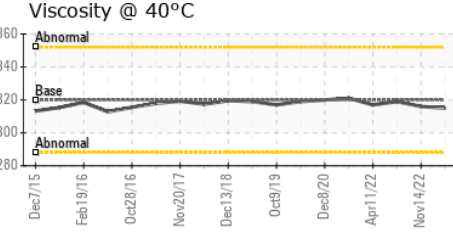
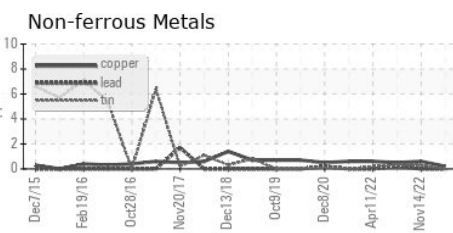
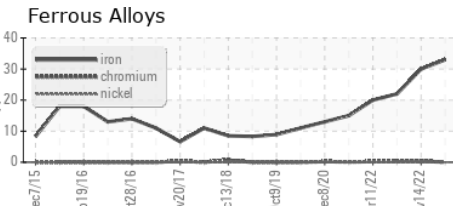
PARAMETER	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.05	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445 320	315	316	319

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX004203 **Received** : 07 Apr 2023
Lab Number : 05814527 **Diagnosed** : 12 Apr 2023
Unique Number : 10417319 **Diagnostician** : Angela Borella
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

NORDEX USA - Chicago
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 CHICAGO, IL
 US 60606
 Contact: DEVIN LINEHAN
 DLinehan@nordex-online.com
 T: (312)386-4124
 F: (312)386-7102

Certificate L2367
 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)