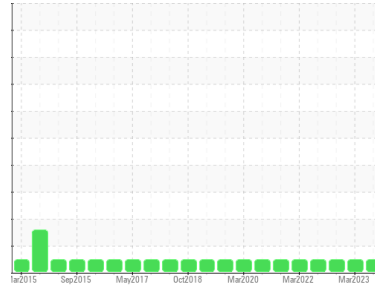




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area  
**FOUR MILE RIDGE [200005315]**  
 Machine Id  
**83305 SITE 16**  
 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		<b>NX012360</b>	NX004209	NX010431
Sample Date	Client Info		<b>12 Oct 2023</b>	29 Mar 2023	01 Nov 2022
Machine Age	hrs	Client Info	<b>69090</b>	62855	60276
Oil Age	hrs	Client Info	<b>69090</b>	62855	60276
Oil Changed	Client Info		<b>Not Changed</b>	Not Changed	Not Changed
Sample Status			<b>NORMAL</b>	NORMAL	NORMAL

## WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184	>80	<b>12</b>	7	7
Iron	ppm	ASTM D5185m	>150	<b>4</b>	4
Chromium	ppm	ASTM D5185m	>5	<b>0</b>	<1
Nickel	ppm	ASTM D5185m	>10	<b>0</b>	0
Titanium	ppm	ASTM D5185m	>10	<b>0</b>	0
Silver	ppm	ASTM D5185m		<b>0</b>	0
Aluminum	ppm	ASTM D5185m	>10	<b>5</b>	<1
Lead	ppm	ASTM D5185m	>20	<b>0</b>	<1
Copper	ppm	ASTM D5185m	>50	<b>1</b>	<1
Tin	ppm	ASTM D5185m	>10	<b>&lt;1</b>	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1
Cadmium	ppm	ASTM D5185m		<b>0</b>	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>25</b>	0
Barium	ppm	ASTM D5185m		<b>&lt;1</b>	0
Molybdenum	ppm	ASTM D5185m	1150	<b>671</b>	635
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1
Magnesium	ppm	ASTM D5185m		<b>7</b>	9
Calcium	ppm	ASTM D5185m	2000	<b>1314</b>	1301
Phosphorus	ppm	ASTM D5185m	400	<b>308</b>	312
Zinc	ppm	ASTM D5185m	0	<b>0</b>	0
Sulfur	ppm	ASTM D5185m	1850	<b>1672</b>	1544

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	<b>8</b>	8
Sodium	ppm	ASTM D5185m	>20	<b>7</b>	7
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	<1
Water	%	ASTM D6304	>0.05	<b>0.011</b>	0.008
ppm Water	ppm	ASTM D6304	>500	<b>114</b>	89.5

## FLUID CLEANLINESS

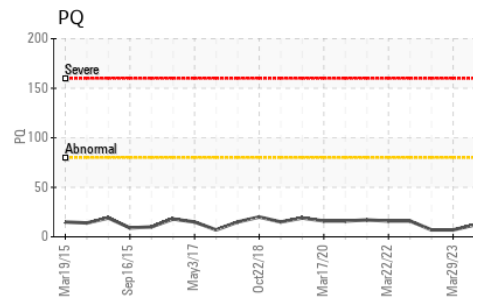
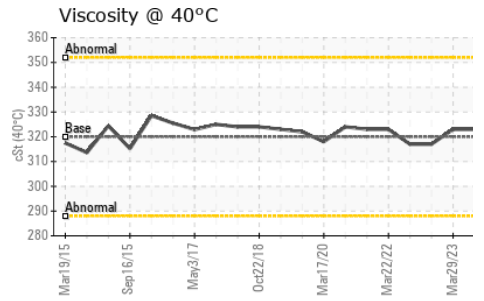
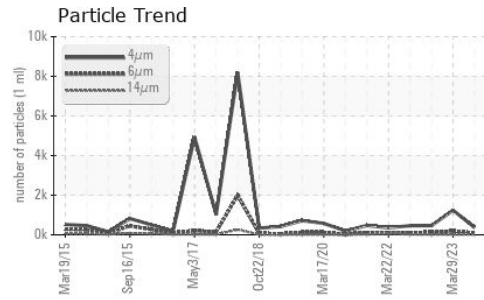
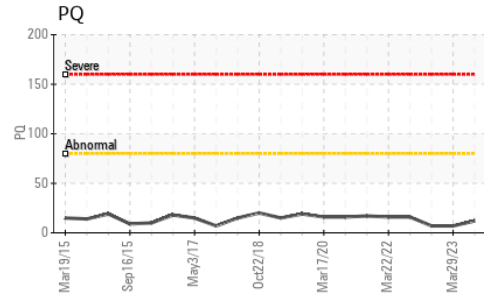
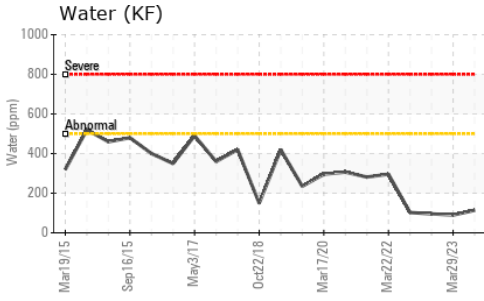
	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		<b>368</b>	1240	464
Particles >6µm	ASTM D7647	>2500	<b>87</b>	189	120
Particles >14µm	ASTM D7647	>320	<b>19</b>	9	13
Particles >21µm	ASTM D7647	>80	<b>8</b>	3	4
Particles >38µm	ASTM D7647	>20	<b>0</b>	1	1
Particles >71µm	ASTM D7647	>4	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>--/18/15	<b>16/14/11</b>	17/15/10	16/14/11

## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	<b>0.41</b>	0.53



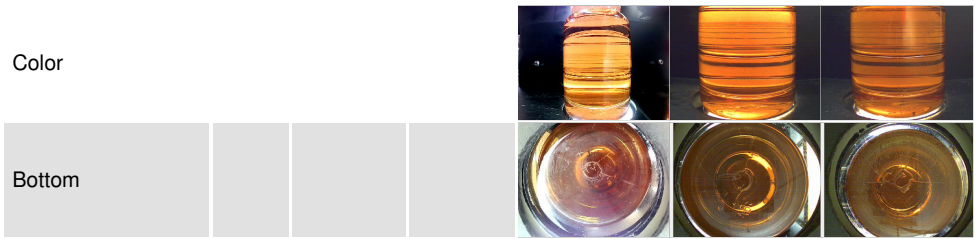
# OIL ANALYSIS REPORT



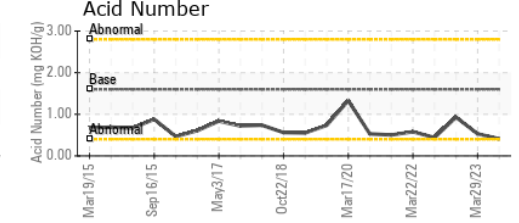
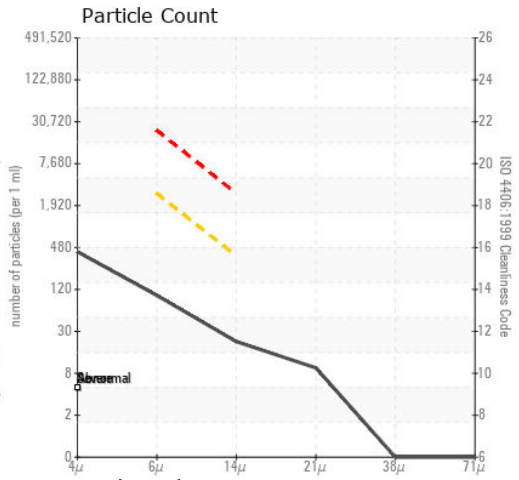
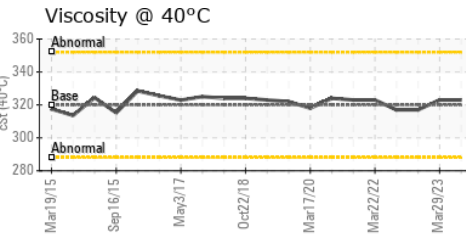
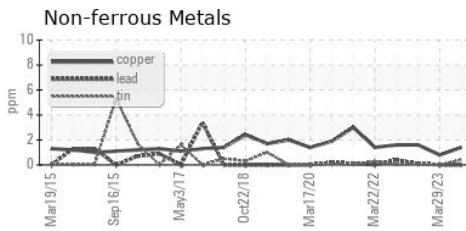
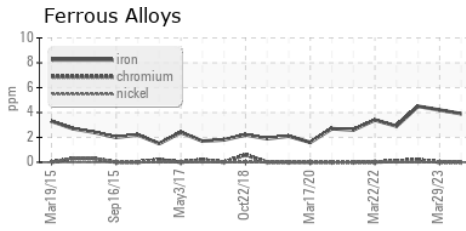
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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	323	317

SAMPLE IMAGES	method	limit/base	current	history1	history2
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## GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
 Sample No. : NX012360  
 Lab Number : 06097713  
 Unique Number : 10890566  
 Test Package : IND 2 ( Additional Tests: KF, PQ, PrtCount )

Received : 22 Feb 2024  
 Tested : 23 Feb 2024  
 Diagnosed : 25 Feb 2024 - Doug Bogart

**NORDEX USA - Chicago**  
 300 SOUTH WACKER DRIVE, SUITE 1500  
 CHICAGO, IL  
 US 60606

Contact: DEVIN LINEHAN  
 DLinehan@nordex-online.com

T: (312)386-4124  
 F: (312)386-7102

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)