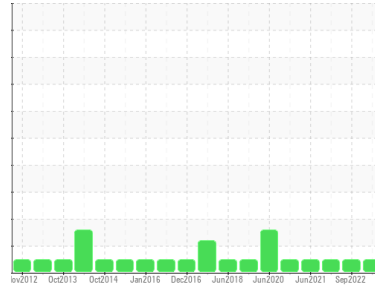




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area  
**RIPPEY [200005325]**  
 Machine Id  
**82218 SITE 17**

Component  
**Wind Turbine Gearbox**  
 Fluid

**CASTROL OPTIGEAR SYNTHETIC X 320 (340 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 oil. The amount and size of particulates present in the system are 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>NX05999841</b>	NX05672237	NX05440120
Sample Date	Client Info		<b>26 Jul 2023</b>	27 Sep 2022	13 Dec 2021
Machine Age	hrs	Client Info	<b>0</b>	0	0
Oil Age	hrs	Client Info	<b>0</b>	0	0
Oil Changed	Client Info		<b>N/A</b>	N/A	N/A
Sample Status			<b>NORMAL</b>	NORMAL	NORMAL

## WEAR METALS

	method	limit/base	current	history1	history2	
PQ	ASTM D8184	>80	<b>9</b>	9	21	
Iron	ppm	ASTM D5185m	>150	<b>21</b>	19	13
Chromium	ppm	ASTM D5185m	>5	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>10	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m	>10	<b>0</b>	0	0
Silver	ppm	ASTM D5185m		<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185m	>10	<b>5</b>	0	<1
Lead	ppm	ASTM D5185m	>20	<b>0</b>	0	<1
Copper	ppm	ASTM D5185m	>50	<b>&lt;1</b>	1	1
Tin	ppm	ASTM D5185m	>10	<b>0</b>	0	0
Antimony	ppm	ASTM D5185m	>5	<b>---</b>	---	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	<1
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m		<b>42</b>	<1	0
Barium	ppm	ASTM D5185m		<b>0</b>	6	0
Molybdenum	ppm	ASTM D5185m	1150	<b>776</b>	785	728
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>8</b>	5	8
Calcium	ppm	ASTM D5185m	2000	<b>1594</b>	1580	1528
Phosphorus	ppm	ASTM D5185m	400	<b>362</b>	332	339
Zinc	ppm	ASTM D5185m	0	<b>0</b>	2	0
Sulfur	ppm	ASTM D5185m	1850	<b>1787</b>	1916	1749

## CONTAMINANTS

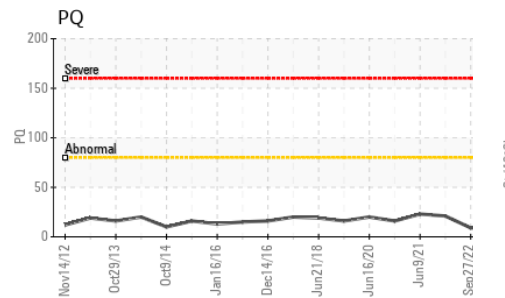
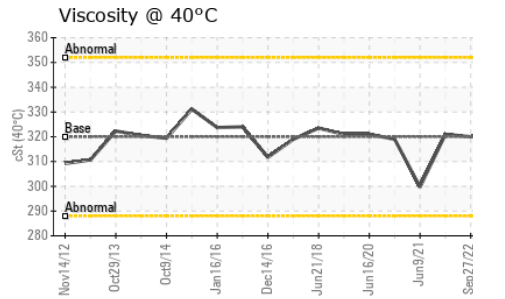
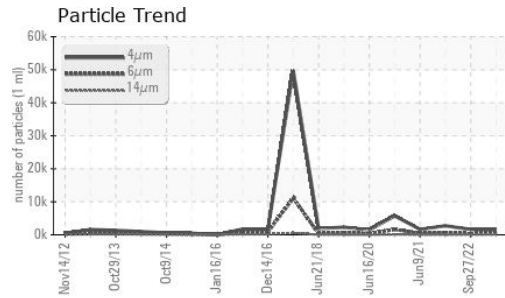
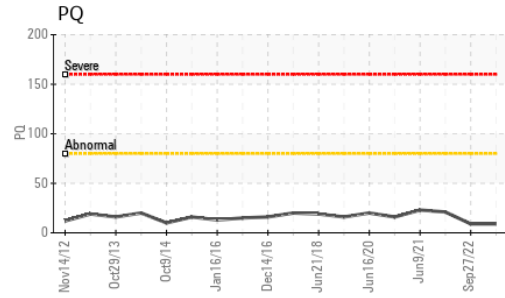
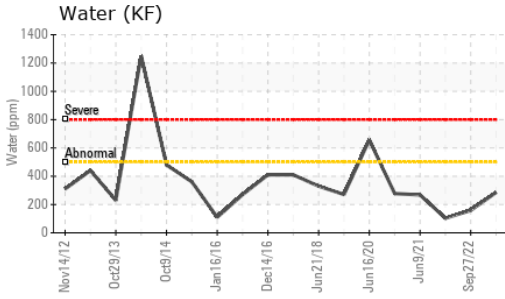
	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>50	<b>12</b>	9	9
Sodium	ppm	ASTM D5185m	>20	<b>10</b>	8	8
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	3	<1
Water	%	ASTM D6304	>0.05	<b>0.028</b>	0.015	0.010
ppm Water	ppm	ASTM D6304	>500	<b>285.7</b>	158.6	103.1

## FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		<b>1481</b>	1641	2738
Particles >6µm	ASTM D7647	>2500	<b>524</b>	327	572
Particles >14µm	ASTM D7647	>320	<b>68</b>	19	47
Particles >21µm	ASTM D7647	>80	<b>21</b>	3	14
Particles >38µm	ASTM D7647	>20	<b>1</b>	0	0
Particles >71µm	ASTM D7647	>4	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>--/18/15	<b>18/16/13</b>	18/16/11	19/16/13



# OIL ANALYSIS REPORT

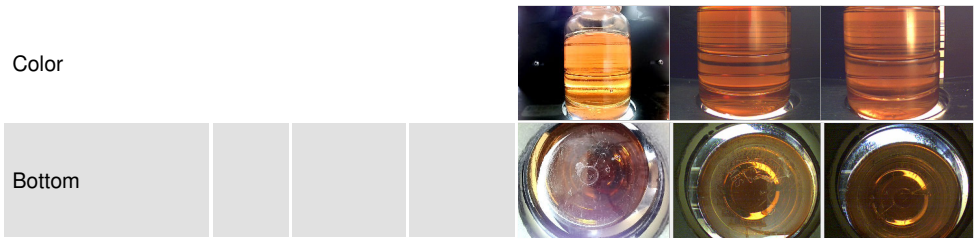


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	<b>0.49</b>	0.52	0.467

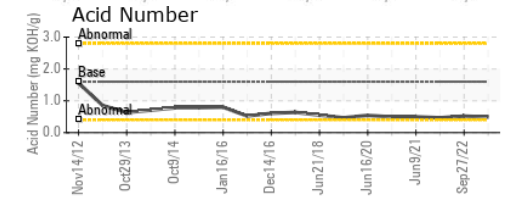
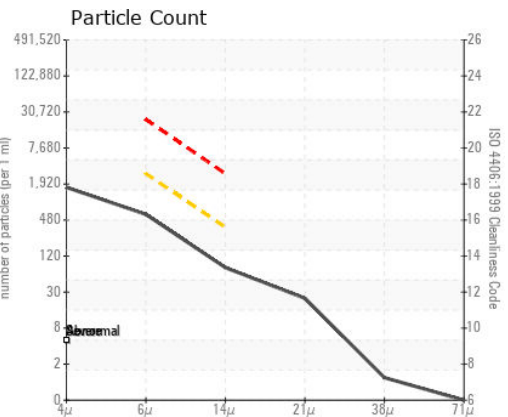
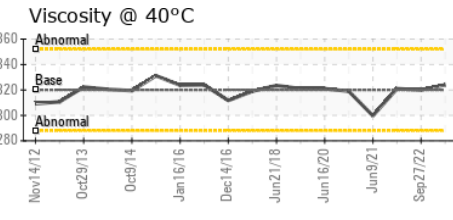
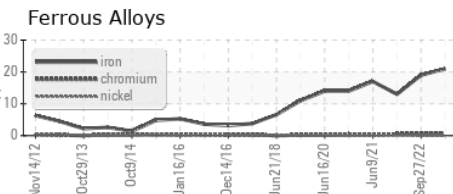
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>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

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	<b>324</b>	320	321

## SAMPLE IMAGES



## GRAPHS



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : NX05999841 **Received** : 06 Nov 2023  
**Lab Number** : 05999841 **Diagnosed** : 08 Nov 2023  
**Unique Number** : 10728201 **Diagnostician** : Jonathan Hester

**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

**Test Package** : IND 2 ( Additional Tests: KF, PQ, PrtCount )

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)