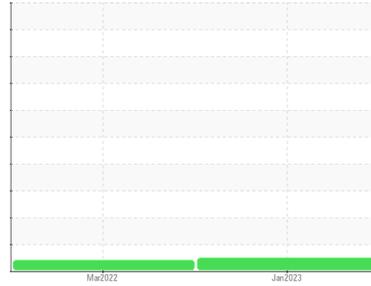




# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Area  
**IRON STAR [200006142]**  
 Machine Id  
**11WEA88306**  
 Component  
**Wind Turbine Gearbox**  
 Fluid  
**GEAR OIL (PAO) ISO 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 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>NX05739627</b>	NX05491176	---
Sample Date	Client Info		<b>15 Jan 2023</b>	13 Mar 2022	---
Machine Age	hrs	Client Info	<b>0</b>	0	---
Oil Age	hrs	Client Info	<b>0</b>	0	---
Oil Changed	Client Info		<b>N/A</b>	N/A	---
Sample Status			<b>NORMAL</b>	ABNORMAL	---

## WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184	>50	<b>7</b>	17	---
Iron	ppm	ASTM D5185m	>30	<b>23</b>	15
Chromium	ppm	ASTM D5185m	>3	<b>0</b>	<1
Nickel	ppm	ASTM D5185m	>3	<b>0</b>	0
Titanium	ppm	ASTM D5185m	>10	<b>0</b>	0
Silver	ppm	ASTM D5185m		<b>0</b>	<1
Aluminum	ppm	ASTM D5185m	>30	<b>0</b>	<1
Lead	ppm	ASTM D5185m	>15	<b>&lt;1</b>	<1
Copper	ppm	ASTM D5185m	>10	<b>&lt;1</b>	<1
Tin	ppm	ASTM D5185m	>10	<b>&lt;1</b>	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	25	<b>9</b>	12
Barium	ppm	ASTM D5185m	12	<b>0</b>	0
Molybdenum	ppm	ASTM D5185m	5	<b>0</b>	0
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1
Magnesium	ppm	ASTM D5185m	25	<b>0</b>	0
Calcium	ppm	ASTM D5185m	25	<b>21</b>	21
Phosphorus	ppm	ASTM D5185m	375	<b>214</b>	246
Zinc	ppm	ASTM D5185m	25	<b>4</b>	0
Sulfur	ppm	ASTM D5185m	4900	<b>5683</b>	4372

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>+15	<b>10</b>	9
Sodium	ppm	ASTM D5185m		<b>4</b>	2
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	0
Water	%	ASTM D6304	>0.02	<b>0.004</b>	0.001
ppm Water	ppm	ASTM D6304	>200	<b>46.2</b>	8.4

## FLUID CLEANLINESS

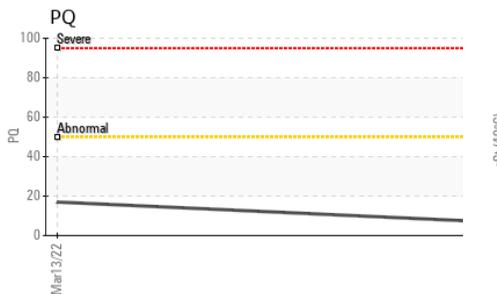
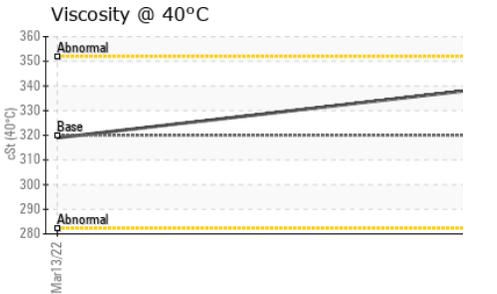
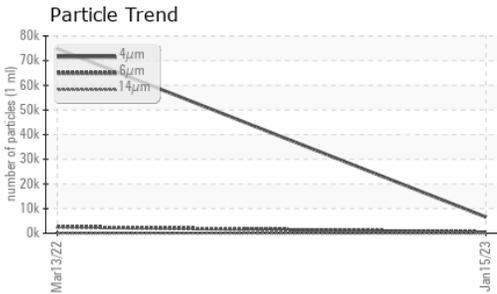
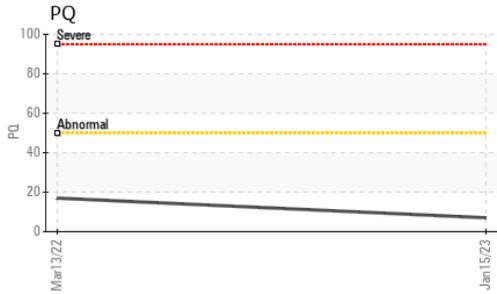
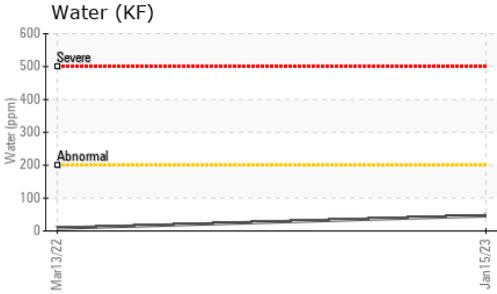
	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		<b>6568</b>	74850	---
Particles >6µm	ASTM D7647	>1300	<b>433</b>	▲ 2575	---
Particles >14µm	ASTM D7647	>160	<b>44</b>	35	---
Particles >21µm	ASTM D7647	>40	<b>17</b>	6	---
Particles >38µm	ASTM D7647	>10	<b>0</b>	0	---
Particles >71µm	ASTM D7647	>3	<b>0</b>	0	---
Oil Cleanliness	ISO 4406 (c)	>17/14	<b>16/13</b>	▲ 23/19/12	---

## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.10	<b>0.35</b>	0.40



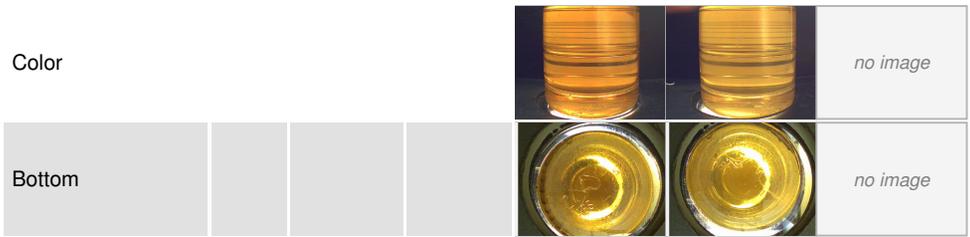
# OIL ANALYSIS REPORT



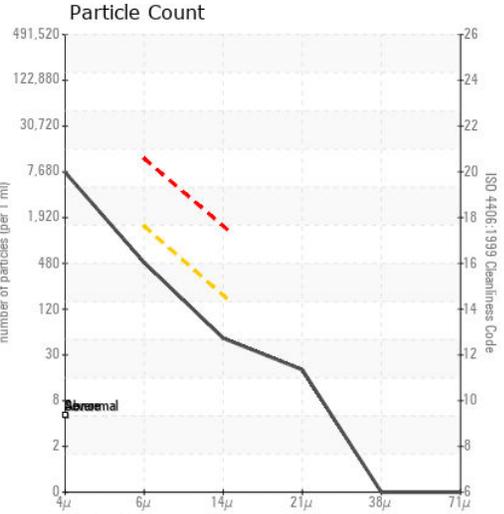
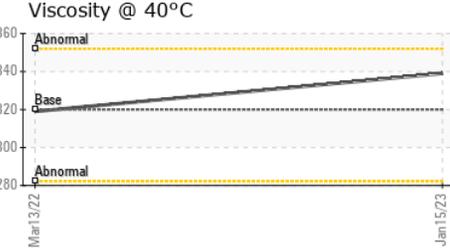
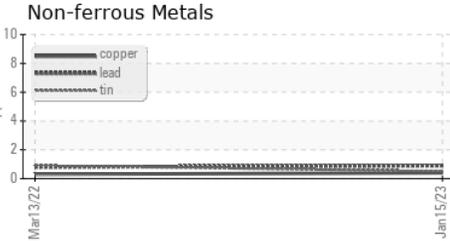
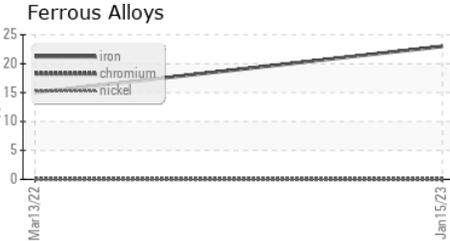
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	---
Precipitate	scalar	*Visual	NONE	NONE	---
Silt	scalar	*Visual	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.02	NEG	---
Free Water	scalar	*Visual		NEG	---

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	339	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.** : NX05739627 **Received** : 16 Jan 2023  
**Lab Number** : 05739627 **Diagnosed** : 17 Jan 2023  
**Unique Number** : 10294226 **Diagnostician** : Jonathan Hester  
**Test Package** : IND 2 ( Additional Tests: KF, PQ, PrtCount )

**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

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)