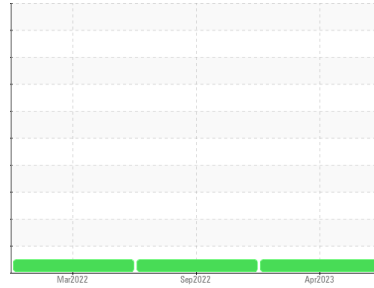




# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Area  
**FRONTIER II [200006776]**  
 Machine Id  
**26WEA86904**  
 Component  
**Wind Turbine Gearbox**  
 Fluid  
**FUCHS RENOLIN CLP 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>NX05867849</b>	NX05639644	NX05492486
Sample Date	Client Info			<b>17 Apr 2023</b>	12 Sep 2022	14 Mar 2022
Machine Age	hrs	Client Info		<b>6524</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>12</b>	9	17
Iron	ppm	ASTM D5185m	>150	<b>17</b>	12	9
Chromium	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	0
Nickel	ppm	ASTM D5185m	>10	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m	>10	<b>0</b>	0	0
Silver	ppm	ASTM D5185m		<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>10	<b>&lt;1</b>	<1	<1
Lead	ppm	ASTM D5185m	>20	<b>0</b>	0	0
Copper	ppm	ASTM D5185m	>50	<b>&lt;1</b>	<1	<1
Tin	ppm	ASTM D5185m	>10	<b>0</b>	<1	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>4</b>	5	0
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>0</b>	0	0
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>0</b>	0	0
Calcium	ppm	ASTM D5185m		<b>4</b>	6	8
Phosphorus	ppm	ASTM D5185m		<b>170</b>	195	209
Zinc	ppm	ASTM D5185m		<b>0</b>	2	0
Sulfur	ppm	ASTM D5185m		<b>6452</b>	4832	4436

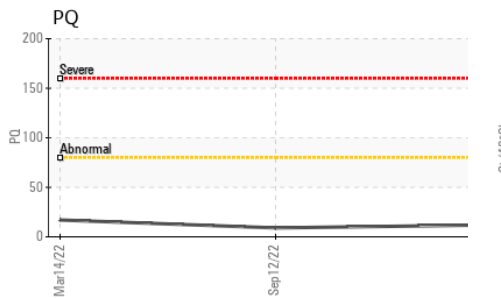
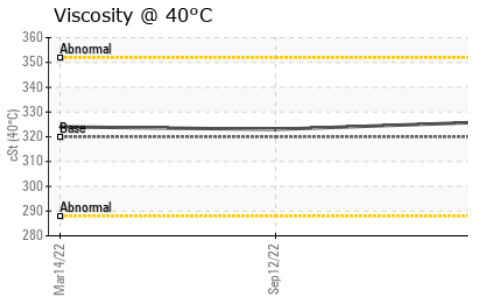
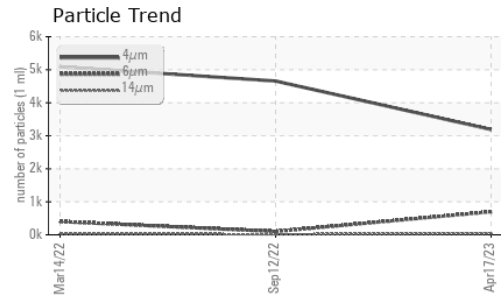
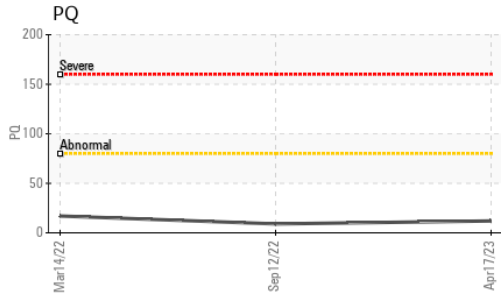
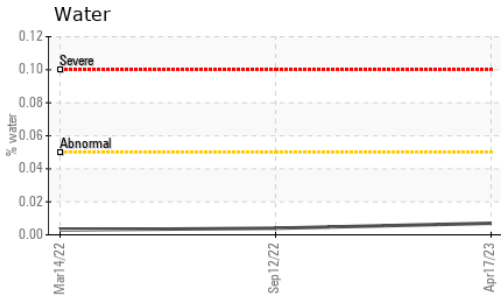
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	<b>4</b>	5	20
Sodium	ppm	ASTM D5185m	>20	<b>2</b>	<1	<1
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	0	0
Water	%	ASTM D6304	>0.05	<b>0.007</b>	0.004	0.003
ppm Water	ppm	ASTM D6304	>500	<b>72.8</b>	44.7	35.5

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		<b>3189</b>	4657	5090
Particles >6µm		ASTM D7647	>2500	<b>698</b>	101	403
Particles >14µm		ASTM D7647	>320	<b>35</b>	14	29
Particles >21µm		ASTM D7647	>80	<b>6</b>	5	8
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>19/17/12</b>	19/14/11	20/16/12

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		<b>0.56</b>	0.54	0.51



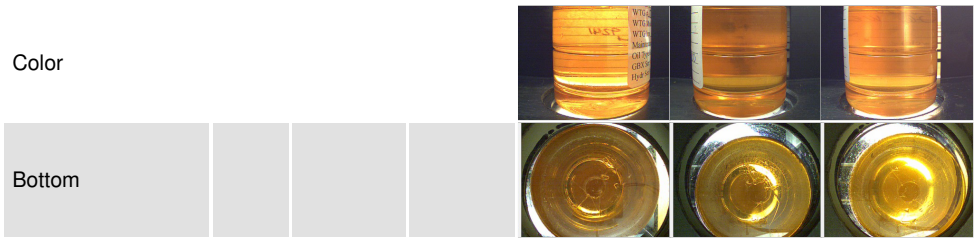
# OIL ANALYSIS REPORT



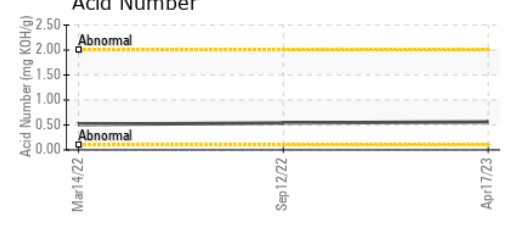
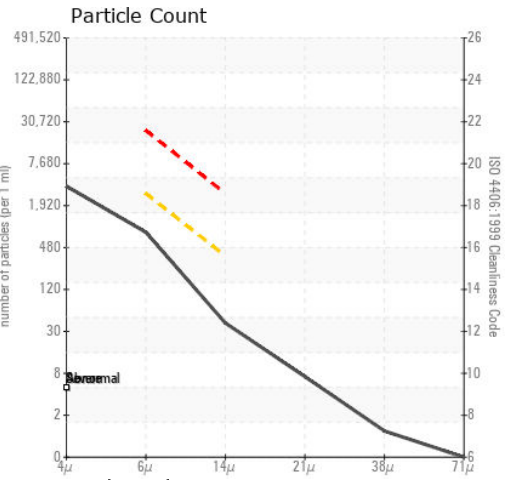
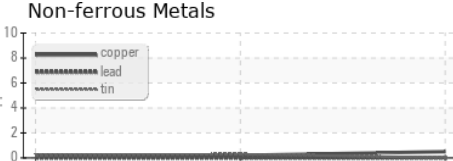
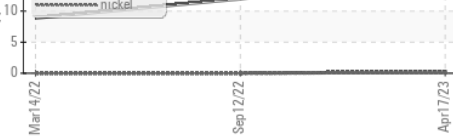
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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	326	323

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



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : NX05867849 **Received** : 08 Jun 2023  
**Lab Number** : 05867849 **Diagnosed** : 11 Jun 2023  
**Unique Number** : 10507633 **Diagnostician** : Doug Bogart  
**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  
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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)