



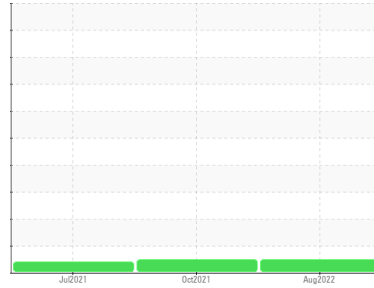
# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Area  
**FRONTIER II [200006776]**  
 Machine Id  
**15WEA86919**  
 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>NX05630004</b>	NX05391907	NX007461
Sample Date	Client Info			<b>29 Aug 2022</b>	08 Oct 2021	09 Jul 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	ATTENTION

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184	>80	<b>9</b>	18	21
Iron	ppm	ASTM D5185m	>150	<b>13</b>	7	8
Chromium	ppm	ASTM D5185m	>5	<b>0</b>	0	0
Nickel	ppm	ASTM D5185m	>10	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m		<b>0</b>	0	0
Silver	ppm	ASTM D5185m		<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>10	<b>0</b>	0	<1
Lead	ppm	ASTM D5185m	>20	<b>0</b>	<1	0
Copper	ppm	ASTM D5185m	>50	<b>&lt;1</b>	<1	<1
Tin	ppm	ASTM D5185m		<b>0</b>	<1	0
Antimony	ppm	ASTM D5185m		<b>---</b>	0	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	0

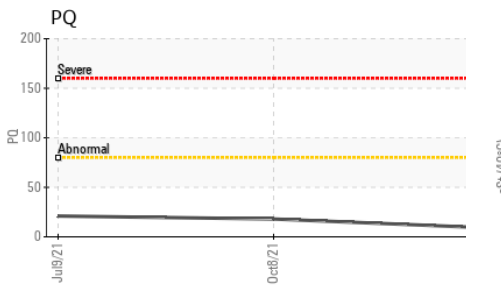
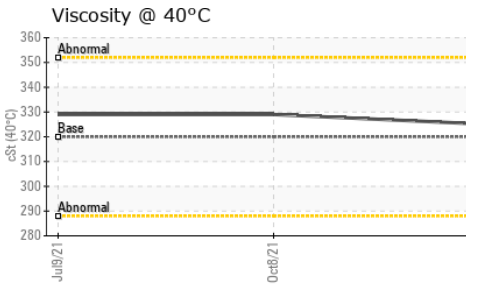
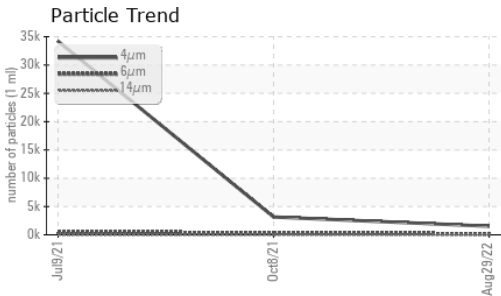
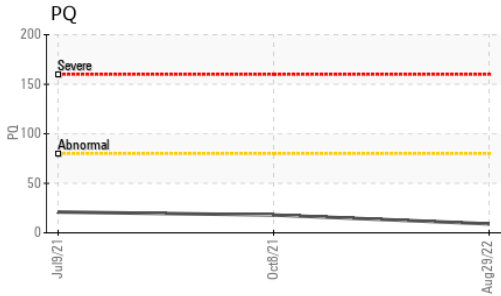
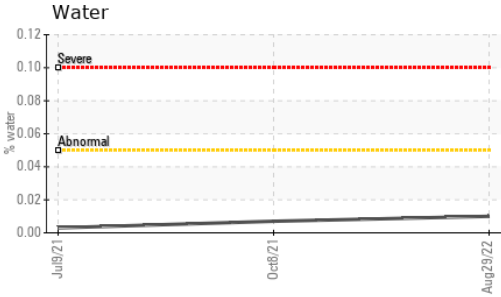
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>0</b>	11	8
Barium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>0</b>	0	0
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
Magnesium	ppm	ASTM D5185m		<b>0</b>	0	0
Calcium	ppm	ASTM D5185m		<b>9</b>	9	0
Phosphorus	ppm	ASTM D5185m		<b>187</b>	73	203
Zinc	ppm	ASTM D5185m		<b>1</b>	0	0
Sulfur	ppm	ASTM D5185m		<b>4784</b>	4297	4438

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	<b>4</b>	3	2
Sodium	ppm	ASTM D5185m	>20	<b>1</b>	<1	0
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	<1	0
Water	%	ASTM D6304	>0.05	<b>0.010</b>	0.007	0.003
ppm Water	ppm	ASTM D6304	>500	<b>105.9</b>	78.8	31.6

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		<b>1518</b>	3154	34196
Particles >6µm		ASTM D7647	>2500	<b>156</b>	361	▲ 481
Particles >14µm		ASTM D7647	>320	<b>19</b>	20	11
Particles >21µm		ASTM D7647	>80	<b>7</b>	2	3
Particles >38µm		ASTM D7647	>20	<b>0</b>	0	0
Particles >71µm		ASTM D7647	>4	<b>0</b>	0	0
Oil Cleanliness		ISO 4406 (c)	>--/18/15	<b>18/14/11</b>	19/16/11	▲ 22/16/11



# OIL ANALYSIS REPORT

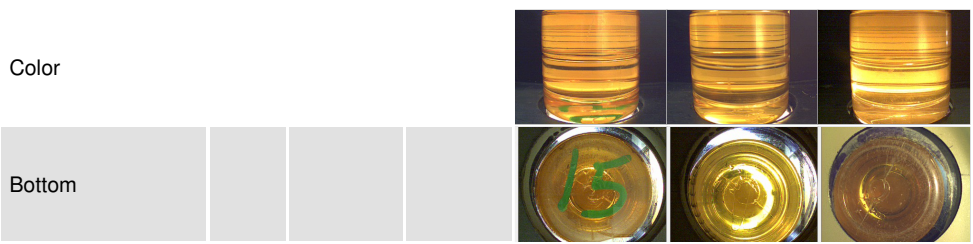


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		<b>0.50</b>	0.519	0.459

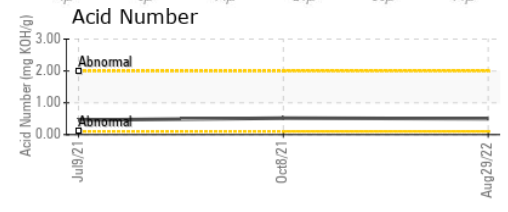
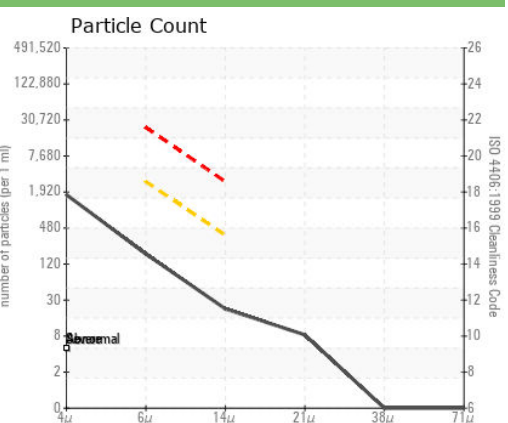
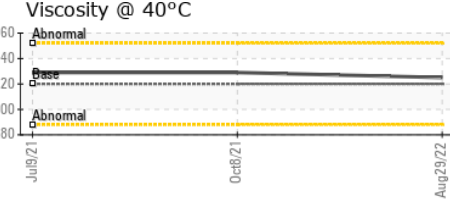
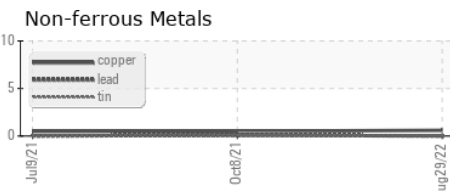
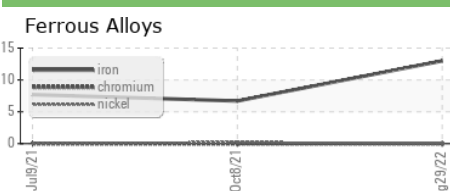
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	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>325</b>	329	329

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



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : NX05630004 **Received** : 30 Aug 2022  
**Lab Number** : **05630004** **Diagnosed** : 31 Aug 2022  
**Unique Number** : 10114525 **Diagnostician** : Doug Bogart  
**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

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)