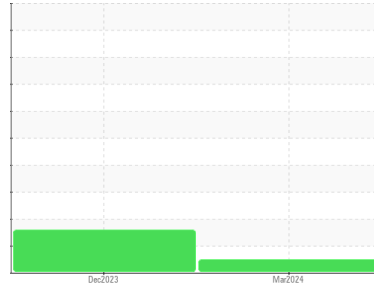




# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Area  
**EL SAUZ [200007686]**  
 Machine Id  
**I01WEA90049 (S/N EWP-03523)**  
 Component  
**Wind Turbine Gearbox**  
 Fluid  
**FUCHS RENOLIN UNISYN CLP 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 acceptable for the time in service.

## SAMPLE INFORMATION

|               | method      | limit/base  | current            | history1    | history2 |
|---------------|-------------|-------------|--------------------|-------------|----------|
| Sample Number | Client Info |             | <b>NX015072</b>    | NX014651    | ---      |
| Sample Date   | Client Info |             | <b>12 Mar 2024</b> | 12 Dec 2023 | ---      |
| 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>16</b> | 11           | ---      |
| Iron     | ppm        | ASTM D5185m | >30       | <b>28</b>    | 7        |
| Chromium | ppm        | ASTM D5185m | >3        | <b>0</b>     | 0        |
| 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>     | 0        |
| Aluminum | ppm        | ASTM D5185m | >30       | <b>&lt;1</b> | 0        |
| Lead     | ppm        | ASTM D5185m | >15       | <b>&lt;1</b> | <1       |
| Copper   | ppm        | ASTM D5185m | >10       | <b>0</b>     | <1       |
| Tin      | ppm        | ASTM D5185m | >10       | <b>&lt;1</b> | 0        |
| 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 |         | <b>1</b>     | 3        |
| Barium     | ppm    | ASTM D5185m |         | <b>0</b>     | 0        |
| Molybdenum | ppm    | ASTM D5185m |         | <b>0</b>     | 0        |
| Manganese  | ppm    | ASTM D5185m |         | <b>&lt;1</b> | <1       |
| Magnesium  | ppm    | ASTM D5185m |         | <b>0</b>     | 0        |
| Calcium    | ppm    | ASTM D5185m |         | <b>9</b>     | 16       |
| Phosphorus | ppm    | ASTM D5185m |         | <b>222</b>   | 215      |
| Zinc       | ppm    | ASTM D5185m |         | <b>0</b>     | 0        |
| Sulfur     | ppm    | ASTM D5185m |         | <b>6144</b>  | 5055     |

## CONTAMINANTS

|           | method | limit/base  | current | history1     | history2 |
|-----------|--------|-------------|---------|--------------|----------|
| Silicon   | ppm    | ASTM D5185m | >+15    | <b>5</b>     | 4        |
| Sodium    | ppm    | ASTM D5185m |         | <b>0</b>     | 1        |
| Potassium | ppm    | ASTM D5185m | >20     | <b>0</b>     | 0        |
| Water     | %      | ASTM D6304  | >0.02   | <b>0.004</b> | 0.008    |
| ppm Water | ppm    | ASTM D6304  | >200    | <b>47</b>    | 86       |

## FLUID CLEANLINESS

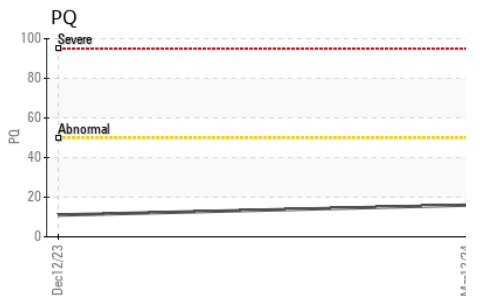
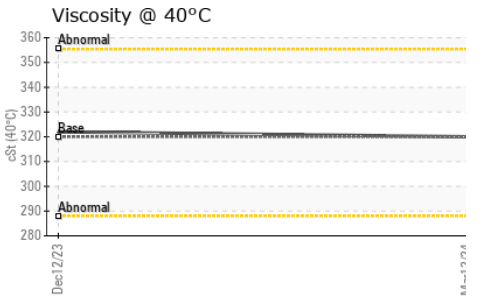
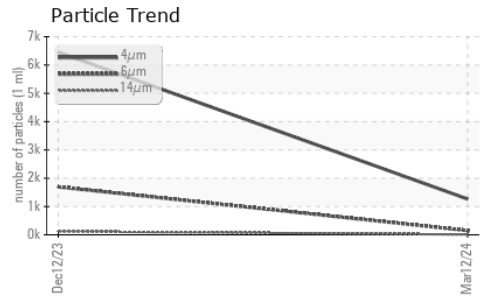
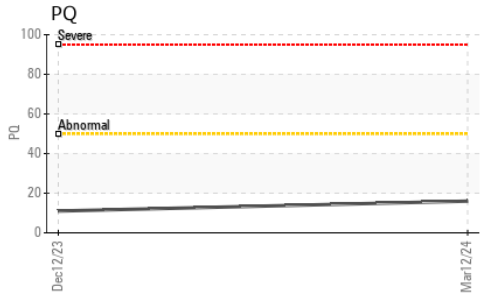
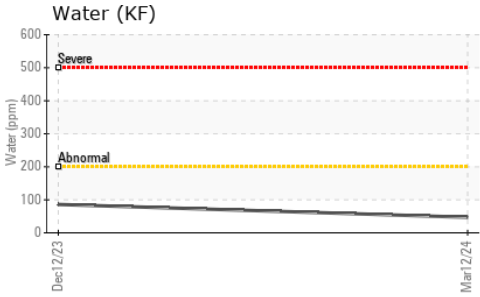
|                 | method       | limit/base | current         | history1   | history2 |
|-----------------|--------------|------------|-----------------|------------|----------|
| Particles >4µm  | ASTM D7647   |            | <b>1264</b>     | 6454       | ---      |
| Particles >6µm  | ASTM D7647   | >320       | <b>148</b>      | ▲ 1692     | ---      |
| Particles >14µm | ASTM D7647   | >40        | <b>8</b>        | ▲ 120      | ---      |
| Particles >21µm | ASTM D7647   | >10        | <b>3</b>        | ▲ 26       | ---      |
| Particles >38µm | ASTM D7647   | >3         | <b>0</b>        | 1          | ---      |
| Particles >71µm | ASTM D7647   | >3         | <b>0</b>        | 0          | ---      |
| Oil Cleanliness | ISO 4406 (c) | >--/15/12  | <b>17/14/10</b> | ▲ 20/18/14 | ---      |

## FLUID DEGRADATION

|                  | method   | limit/base | current | history1    | history2 |
|------------------|----------|------------|---------|-------------|----------|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 0.6     | <b>0.35</b> | 0.36     |



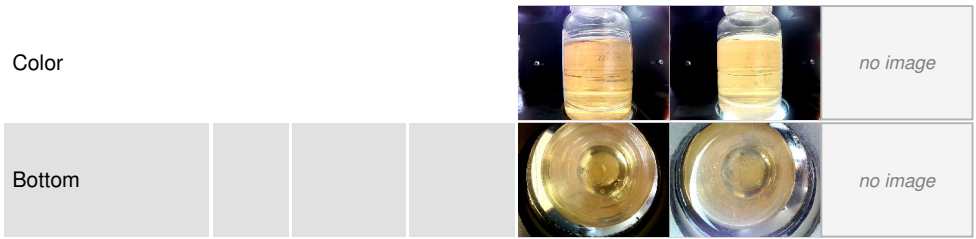
# OIL ANALYSIS REPORT



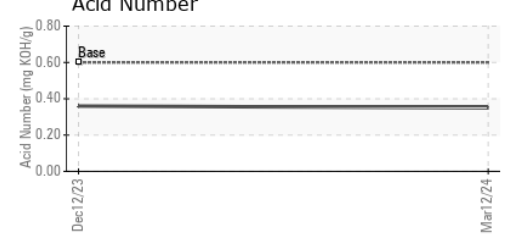
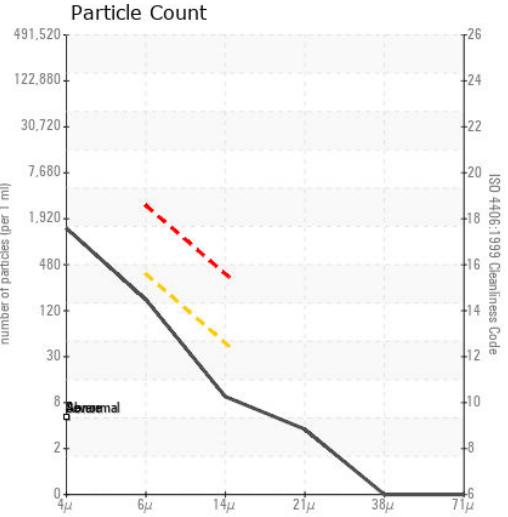
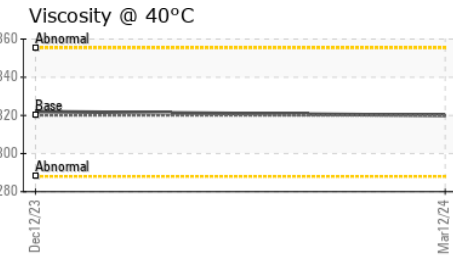
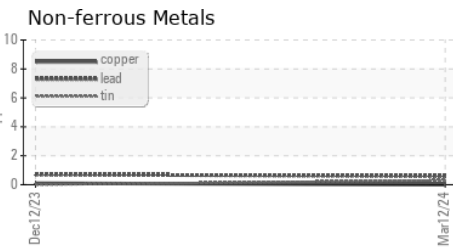
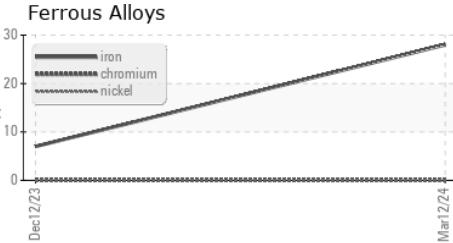
| VISUAL           | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal      | scalar | *Visual    | NONE    | NONE     | ---      |
| Yellow Metal     | scalar | *Visual    | NONE    | NONE     | ---      |
| 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     | 322      | ---      |

| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---------------|--------|------------|---------|----------|----------|
|---------------|--------|------------|---------|----------|----------|



## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : NX015072 **Received** : 19 Mar 2024  
**Lab Number** : **06123077** **Tested** : 20 Mar 2024  
**Unique Number** : 10937228 **Diagnosed** : 21 Mar 2024 - Angela Borella  
**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)