



OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

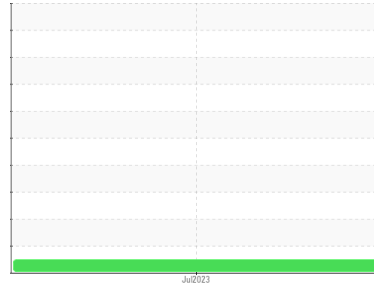


Area
BLACKJACK CREEK [700007683]

Machine Id
H-05

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

The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the oil.

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 | | NX015713 | --- | --- |
| Sample Date | Client Info | | 12 Jul 2023 | --- | --- |
| Machine Age | hrs | Client Info | 49999972 | --- | --- |
| Oil Age | hrs | Client Info | 0 | --- | --- |
| Oil Changed | Client Info | | N/A | --- | --- |
| Sample Status | | | NORMAL | --- | --- |

WEAR METALS

| | method | limit/base | current | history1 | history2 |
|----------|------------|-------------|-----------|--------------|----------|
| PQ | ASTM D8184 | >80 | 13 | --- | --- |
| Iron | ppm | ASTM D5185m | >150 | 35 | --- |
| Chromium | ppm | ASTM D5185m | >5 | 0 | --- |
| Nickel | ppm | ASTM D5185m | >10 | 0 | --- |
| Titanium | ppm | ASTM D5185m | >10 | 0 | --- |
| Silver | ppm | ASTM D5185m | | 0 | --- |
| Aluminum | ppm | ASTM D5185m | >10 | 0 | --- |
| Lead | ppm | ASTM D5185m | >20 | <1 | --- |
| Copper | ppm | ASTM D5185m | >50 | 0 | --- |
| Tin | ppm | ASTM D5185m | >3 | 0 | --- |
| Vanadium | ppm | ASTM D5185m | | 0 | --- |
| Cadmium | ppm | ASTM D5185m | | 0 | --- |

ADDITIVES

| | method | limit/base | current | history1 | history2 |
|------------|--------|-------------|---------|--------------|----------|
| Boron | ppm | ASTM D5185m | | 3 | --- |
| Barium | ppm | ASTM D5185m | | 0 | --- |
| Molybdenum | ppm | ASTM D5185m | | 0 | --- |
| Manganese | ppm | ASTM D5185m | | <1 | --- |
| Magnesium | ppm | ASTM D5185m | | 0 | --- |
| Calcium | ppm | ASTM D5185m | | 9 | --- |
| Phosphorus | ppm | ASTM D5185m | | 182 | --- |
| Zinc | ppm | ASTM D5185m | | 0 | --- |
| Sulfur | ppm | ASTM D5185m | | 4800 | --- |

CONTAMINANTS

| | method | limit/base | current | history1 | history2 |
|-----------|--------|-------------|---------|--------------|----------|
| Silicon | ppm | ASTM D5185m | >50 | 5 | --- |
| Sodium | ppm | ASTM D5185m | >20 | 2 | --- |
| Potassium | ppm | ASTM D5185m | >20 | 0 | --- |
| Water | % | ASTM D6304 | >0.05 | 0.006 | --- |
| ppm Water | ppm | ASTM D6304 | >500 | 66 | --- |

FLUID CLEANLINESS

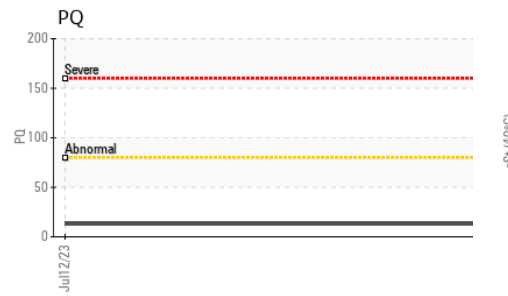
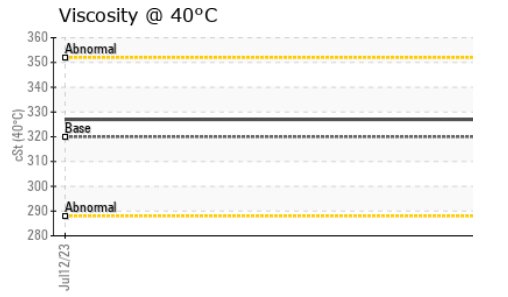
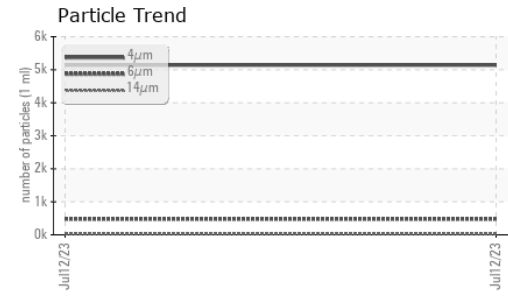
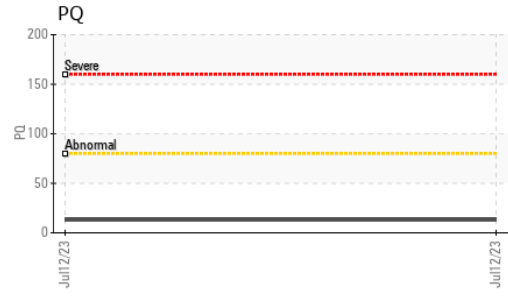
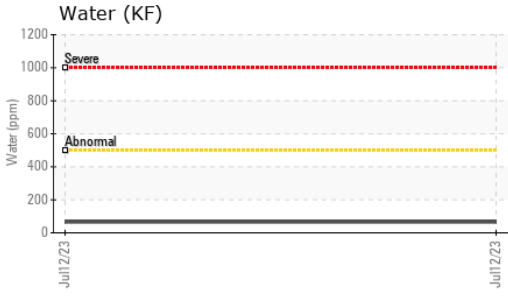
| | method | limit/base | current | history1 | history2 |
|-----------------|--------------|------------|-----------------|----------|----------|
| Particles >4µm | ASTM D7647 | | 5139 | --- | --- |
| Particles >6µm | ASTM D7647 | >2500 | 479 | --- | --- |
| Particles >14µm | ASTM D7647 | >320 | 23 | --- | --- |
| Particles >21µm | ASTM D7647 | >80 | 7 | --- | --- |
| Particles >38µm | ASTM D7647 | >20 | 0 | --- | --- |
| Particles >71µm | ASTM D7647 | >4 | 0 | --- | --- |
| Oil Cleanliness | ISO 4406 (c) | >--/18/15 | 20/16/12 | --- | --- |

FLUID DEGRADATION

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



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 | >0.05 | NEG | --- |
| Free Water | scalar | *Visual | | NEG | --- |

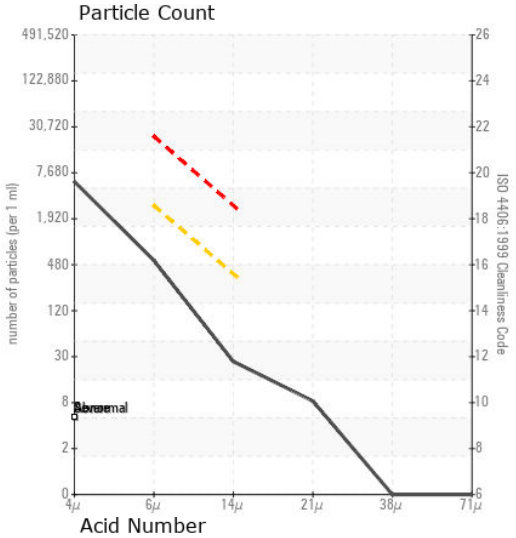
| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| Visc @ 40°C | cSt | ASTM D445 | 320 | 327 | --- |

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

Color

| | | |
|--------|----------|----------|
| | no image | no image |
| Bottom | | no image |

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX015713 **Received** : 30 Jan 2024
Lab Number : 06073849 **Diagnosed** : 31 Jan 2024
Unique Number : 10855940 **Diagnostician** : Don Baldrige
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

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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)