

# PROBLEM SUMMARY

Sample Rating Trend

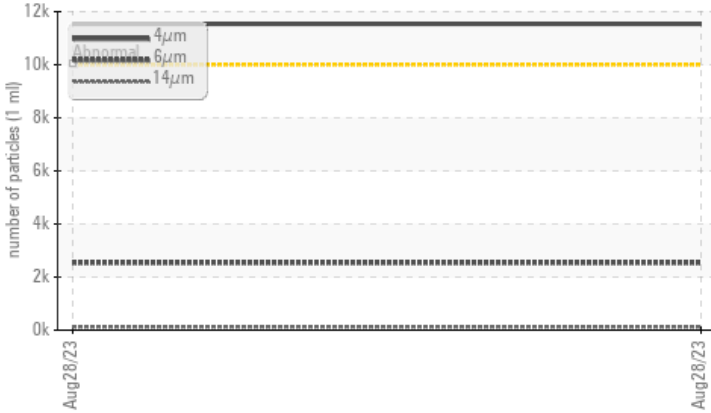
ISO



Machine Id  
**ACFM INLET BLOWER**  
 Component  
**Screw Compressor**  
 Fluid  
**ACFM ISO-VG-150 (55 GAL)**

## COMPONENT CONDITION SUMMARY

### ▲ Particle Trend



## RECOMMENDATION

No corrective action is recommended at this time.  
 Resample at the next service interval to monitor.

## PROBLEMATIC TEST RESULTS

| Sample Status   |              |           | <b>ATTENTION</b>  | --- | --- |
|-----------------|--------------|-----------|-------------------|-----|-----|
| Particles >4µm  | ASTM D7647   | >10000    | ▲ <b>11539</b>    | --- | --- |
| Particles >6µm  | ASTM D7647   | >2500     | ▲ <b>2542</b>     | --- | --- |
| Oil Cleanliness | ISO 4406 (c) | >20/18/15 | ▲ <b>21/19/14</b> | --- | --- |

**Customer Id:** TWIAND  
**Sample No.:** TO60000908  
**Lab Number:** 05996277  
**Test Package:** IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:  
 Don Baldrige +1  
[don.b505@comcast.net](mailto:don.b505@comcast.net)

To change component or sample information:  
 Customer Service +1 1-800-237-1369  
[customerservice@wearcheck.com](mailto:customerservice@wearcheck.com)

## RECOMMENDED ACTIONS

*There are no recommended actions for this sample.*

## HISTORICAL DIAGNOSIS

# OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id  
**ACFM INLET BLOWER**  
 Component  
**Screw Compressor**  
 Fluid  
**ACFM ISO-VG-150 (55 GAL)**

## DIAGNOSIS

- Recommendation**  
 No corrective action is recommended at this time. Resample at the next service interval to monitor.
- Wear**  
 All component wear rates are normal.
- Contamination**  
 There is a moderate amount of silt (particulates < 14 microns in size) present 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     | <b>TO60000908</b>  | ---      | ---      |
| Sample Date   | Client Info     | <b>28 Aug 2023</b> | ---      | ---      |
| Machine Age   | hrs Client Info | <b>0</b>           | ---      | ---      |
| Oil Age       | hrs Client Info | <b>0</b>           | ---      | ---      |
| Oil Changed   | Client Info     | <b>N/A</b>         | ---      | ---      |
| Sample Status |                 | <b>ATTENTION</b>   | ---      | ---      |

## WEAR METALS

| method   | limit/base          | current      | history1 | history2 |
|----------|---------------------|--------------|----------|----------|
| Iron     | ppm ASTM D5185m >60 | <b>0</b>     | ---      | ---      |
| Chromium | ppm ASTM D5185m >4  | <b>0</b>     | ---      | ---      |
| Nickel   | ppm ASTM D5185m     | <b>0</b>     | ---      | ---      |
| Titanium | ppm ASTM D5185m     | <b>0</b>     | ---      | ---      |
| Silver   | ppm ASTM D5185m     | <b>0</b>     | ---      | ---      |
| Aluminum | ppm ASTM D5185m >5  | <b>0</b>     | ---      | ---      |
| Lead     | ppm ASTM D5185m >10 | <b>0</b>     | ---      | ---      |
| Copper   | ppm ASTM D5185m >30 | <b>0</b>     | ---      | ---      |
| Tin      | ppm ASTM D5185m >15 | <b>0</b>     | ---      | ---      |
| Vanadium | ppm ASTM D5185m     | <b>&lt;1</b> | ---      | ---      |
| Cadmium  | ppm ASTM D5185m     | <b>0</b>     | ---      | ---      |

## ADDITIVES

| method     | limit/base      | current      | history1 | history2 |
|------------|-----------------|--------------|----------|----------|
| Boron      | ppm ASTM D5185m | <b>0</b>     | ---      | ---      |
| Barium     | ppm ASTM D5185m | <b>0</b>     | ---      | ---      |
| Molybdenum | ppm ASTM D5185m | <b>0</b>     | ---      | ---      |
| Manganese  | ppm ASTM D5185m | <b>0</b>     | ---      | ---      |
| Magnesium  | ppm ASTM D5185m | <b>&lt;1</b> | ---      | ---      |
| Calcium    | ppm ASTM D5185m | <b>0</b>     | ---      | ---      |
| Phosphorus | ppm ASTM D5185m | <b>65</b>    | ---      | ---      |
| Zinc       | ppm ASTM D5185m | <b>0</b>     | ---      | ---      |
| Sulfur     | ppm ASTM D5185m | <b>54</b>    | ---      | ---      |

## CONTAMINANTS

| method    | limit/base           | current     | history1 | history2 |
|-----------|----------------------|-------------|----------|----------|
| Silicon   | ppm ASTM D5185m >50  | <b>7</b>    | ---      | ---      |
| Sodium    | ppm ASTM D5185m      | <b>2</b>    | ---      | ---      |
| Potassium | ppm ASTM D5185m >20  | <b>3</b>    | ---      | ---      |
| Water     | % ASTM D6304 >0.1    | <b>0.00</b> | ---      | ---      |
| ppm Water | ppm ASTM D6304 >1000 | <b>0.00</b> | ---      | ---      |

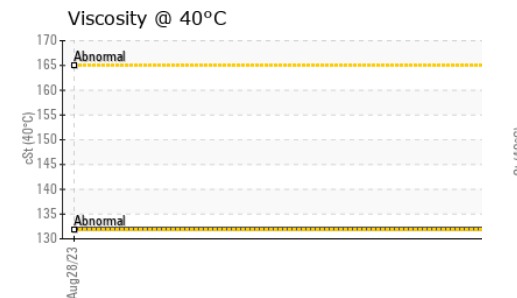
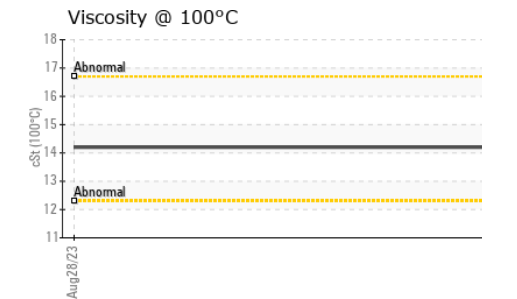
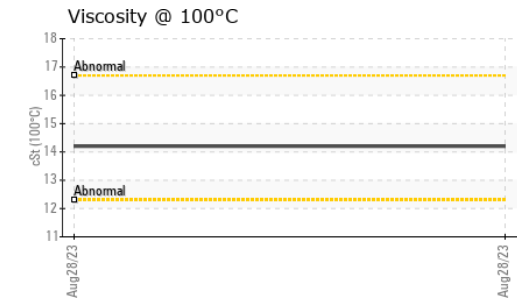
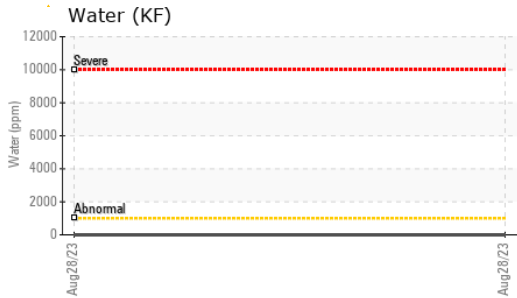
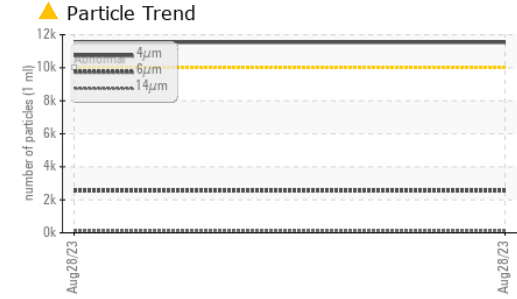
## FLUID CLEANLINESS

| method          | limit/base             | current           | history1 | history2 |
|-----------------|------------------------|-------------------|----------|----------|
| Particles >4µm  | ASTM D7647 >10000      | <b>▲ 11539</b>    | ---      | ---      |
| Particles >6µm  | ASTM D7647 >2500       | <b>▲ 2542</b>     | ---      | ---      |
| Particles >14µm | ASTM D7647 >320        | <b>119</b>        | ---      | ---      |
| Particles >21µm | ASTM D7647 >80         | <b>26</b>         | ---      | ---      |
| Particles >38µm | ASTM D7647 >20         | <b>1</b>          | ---      | ---      |
| Particles >71µm | ASTM D7647 >4          | <b>0</b>          | ---      | ---      |
| Oil Cleanliness | ISO 4406 (c) >20/18/15 | <b>▲ 21/19/14</b> | ---      | ---      |

## FLUID DEGRADATION

| method           | limit/base          | current     | history1 | history2 |
|------------------|---------------------|-------------|----------|----------|
| Acid Number (AN) | mg KOH/g ASTM D8045 | <b>0.12</b> | ---      | ---      |



# OIL ANALYSIS REPORT



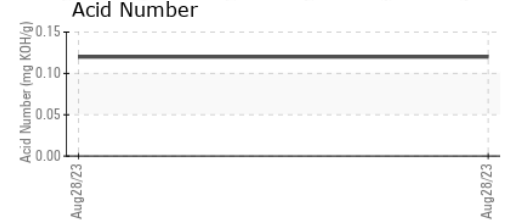
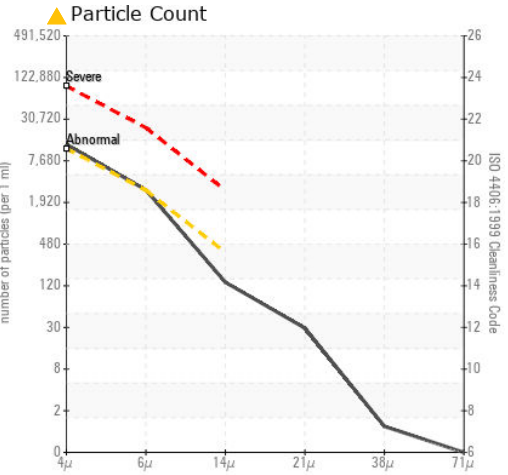
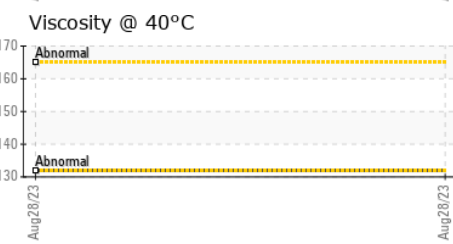
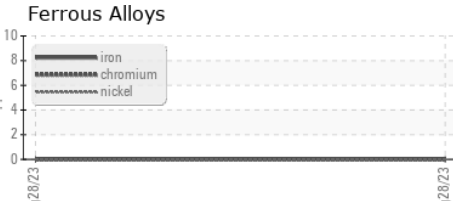
| VISUAL           | method | limit/base | current | history1 | history2 |     |
|------------------|--------|------------|---------|----------|----------|-----|
| White Metal      | scalar | *Visual    | NONE    | NONE     | ---      | --- |
| Yellow Metal     | scalar | *Visual    | NONE    | NONE     | ---      | --- |
| 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    | >0.1    | NEG      | ---      | --- |
| Free Water       | scalar | *Visual    |         | NEG      | ---      | --- |

| FLUID PROPERTIES     | method | limit/base | current | history1 | history2 |
|----------------------|--------|------------|---------|----------|----------|
| Visc @ 40°C          | cSt    | ASTM D445  | 132     | ---      | ---      |
| Visc @ 100°C         | cSt    | ASTM D445  | 14.2    | ---      | ---      |
| Viscosity Index (VI) | Scale  | ASTM D2270 | 105     | ---      | ---      |

### SAMPLE IMAGES

| SAMPLE IMAGES | method | limit/base | current  | history1 | history2 |
|---------------|--------|------------|--|----------|----------|
| Color         |        |            |   | no image | no image |
| Bottom        |        |            |  | no image | no image |

### GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : TO60000908 **Received** : 01 Nov 2023  
**Lab Number** : 05996277 **Diagnosed** : 03 Nov 2023  
**Unique Number** : 10724637 **Diagnostician** : Don Baldrige  
**Test Package** : IND 2 ( Additional Tests: KF, KV100, PrtCount, VI )

**TWIN OAKS RENEWABLES**  
 2690 SH-30  
 ANDERSON, TX  
 US 77830  
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 drhodes@morrowenergy.com

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)