### Analysis Report

**Machine Type:** Anti-Friction Bearing  
**Lubricant:** CONOCO/AW 46  
**Machine MFG:** AIR PROD INC  
**Machine MOD:** 817SA

### Component Information

<table>
<thead>
<tr>
<th>Machine Name: B ID FAN BEARING LUBE OIL</th>
<th>Sample Information</th>
<th>Customer Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Received: 09/22/2017</td>
<td>Lake Rd Plant</td>
<td>Analyst/Test: MMM / KPATAF</td>
</tr>
</tbody>
</table>

### PROBLEMS

- High Water Content
- Excessive Wear
- Excessive Particle Count

### COMMENTS

The level of water contamination (0.6890%) is excessive and considered abnormal. Check for sources of water ingression and repair as necessary. The particle count for this bearing exceeds the limit (19/17/16) and is considered abnormal. Check for sources of particulate ingressation first before changing filters.

### CUSTOMER NOTES

- The level of water contamination (0.6890%) is excessive and considered abnormal. Check for sources of water ingression and repair as necessary.
- The particle count for this bearing exceeds the limit (19/17/16) and is considered abnormal. Check for sources of particulate ingressation first before changing filters.
- Fluid contamination is a possible contributor to elevated wear metals. The high level of wear (iron, lead) suggests that an abnormal wear mode exists. Check this bearing for excessive noise, vibration or high temperature.

### Lab No. 168113

<table>
<thead>
<tr>
<th>Date Sampled</th>
<th>NEW OIL</th>
<th>9/22/2017</th>
<th>8/18/2017</th>
<th>7/14/2017</th>
<th>6/30/2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab No.</td>
<td>1278905</td>
<td>168113</td>
<td>168112</td>
<td>168111</td>
<td>168110</td>
</tr>
</tbody>
</table>

### ELEMENTAL SPECTROSCOPY (ppm) ASTM D5185 Mod (-) indicates below detection limit

- **Iron:** 85 25 5 0
- **Copper:** - - - -
- **Lead:** 40 9 0 0
- **Aluminum:** - - - -
- **Tin:** - - - -
- **Nickel:** - - - -
- **Chromium:** - - - -
- **Titanium:** - - - -
- **Vanadium:** - - - -
- **Silver:** - - - -
- **Calcium:** 174 50 44 39 41
- **Magnesium:** 2 0 0 0 0
- **Phosphorus:** 429 329 318 341 321
- **Zinc:** 659 495 495 472 484
- **Barium:** - - - -
- **Molybdenum:** 3 0 0 0 0
- **Silicon:** 4 14 7 9 6
- **Boron:** - - - -
- **Lithium:** - - - -
- **Sodium:** - - - -
- **Potassium:** - - - -

### Particle Count ISO Codes

- **Pore Block ISO Code:** 18/16/13 21/19/17 19/17/15 18/17/13 17/16/13
- **Particle Count:** 1054 2518 1456 899
- **>4 Micron:** 1543 1056 2518 1456 899
- **>6 Micron:** 600 2965 789 654 401
- **>14 Micron:** 45 1256 198 78 52
- **>50 Micron:** 2 25 5 2 1
- **>100 Micron:** 0 12 2 0 0

### FTIR SPECTROSCOPY (Indexing Numbers) ASTM E2412

- **Oxidation:** 2 2 3 2 2
- **Nitrilation:** 3 2 2 2 2
- **Anti Wear:** 2 12 12 12 12
- **Other Fluid:** 40 118 118 117 117

### Viscosity @ 40°C ASTM D445 MOD

- **Viscosity@40°C:** 42.4 45.9 46.1 45.1 45.9

### Other Parameters

- **Water:** 0.6890 0.3250 0.0430 0.0090

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**Lab No. 168113, Rev 9**  
TestOil - 20338 Progress Drive - Strongsville, OH 44149 216-251-2510  
www.testoil.com  
Testing performed by Insight Services®, an ISO/IEC 17025:2005 accredited laboratory.  
I-A-B Accredited Certificate Number 2221 Testing. (*) Not in scope of accreditation. Customer XYZ assumes sole responsibility for the application of and reliance upon results and recommendations reported by TestOil, whose obligation is limited to good faith performance.
Observations: Analytical ferrography has discovered the following abnormalities. Heavy levels of ferrous rubbing wear particles up to 30 microns in size. Rubbing wear particles are generated as the result of normal sliding wear in a machine. Excessive particulate contamination in the lubricating system can significantly increase the generation of rubbing wear particles. Heavy levels of ferrous sliding wear particles over 100 microns in size. Severe sliding wear occurs under excessive load and/or speed. These particles are distinguished by linear striations indicating sliding contact. High levels of dark metallic oxides. Dark metallic oxides, partially oxidized ferrous wear particles, are typically generated under high temperatures and loads.