



# Sterling Deaerator Company

500 N.E. Colbern Road, Suite 200 • Lee's Summit, MO 64086  
Phone 816-524-5382 • Fax 816-524-5480 • Website: www.sterlingdeaerator.com

## 1.0 Guide To Troubleshooting Deaerators

### 1.1 High O<sub>2</sub>

<u>Possible Causes</u>	<u>Comments or Possible Solutions</u>
<ul style="list-style-type: none"><li>- Air in-leakage</li><li>- Insufficient stabilization period*</li><li>- Trays upset</li><li>- Not steady state conditions*</li><li>- O<sub>2</sub> inlet not in accordance with specified design conditions</li><li>- Spray valves</li><li>- Water inlet temperature too low</li><li>- Improper venting</li><li>- Incorrect testing</li></ul>	<ul style="list-style-type: none"><li>- Loose fittings</li><li>- Shut scavenger off</li><li>- Remove chemical interference's</li><li>- Verify design conditions</li></ul>
<ul style="list-style-type: none"><li>- Operation outside of design conditions</li></ul>	

### 1.2 Excessive Pressure Fluctuation

<u>Possible Causes</u>	<u>Comments or Possible Solutions</u>
<ul style="list-style-type: none"><li>- Inlet steam pressure too high or too low</li><li>- Excessive inlet temperature variation</li></ul>	<ul style="list-style-type: none"><li>- Keep within design range</li></ul>

### 1.3 Low Outlet Temperature

<u>Possible Causes</u>	<u>Comments or Possible Solutions</u>
<ul style="list-style-type: none"><li>- Incorrect thermometer reading</li><li>- Insufficient steam flow</li></ul>	<ul style="list-style-type: none"><li>- Check calibration</li><li>- Check steam supply</li><li>- Check for restrictions</li></ul>
<ul style="list-style-type: none"><li>- Incorrect steam/water ratio</li><li>- Spray valves or internals malfunctioning</li><li>- Heater flooding</li><li>- Inlet flows piped incorrectly</li></ul>	<ul style="list-style-type: none"><li>- Check heat and mass balances</li><li>- Check spray valves, trays, etc.</li><li>- Check all valve and control settings</li><li>- Check all inlet flows and temperatures</li></ul>



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## 1.4 Water Hammer

### Possible Causes

- Inlet flows mixing just prior to Deaerator inlet
- Improper pipe design
- High inlet velocities

### Comments or Possible Solutions

- Mix flows farther upstream of Deaerator
- Check and/or redesign

## 1.5 High CO<sub>2</sub>

### Possible Causes

- High CO<sub>2</sub> at inlet
- High pH
- Improper venting

### Comments or Possible Solutions

- Verify CO<sub>2</sub> design condition
- Lower pH
- Review vent system

## 1.6 Tray Upsets

### Possible Causes

- Tray hold down not secure
- Turbine trip
- Flashing

### Comments or Possible Solutions

- Install correctly
- Gradual increase/decrease of controlled flows

## 1.7 Unexpected Storage Tank Level Excursions

### Possible Causes

- Malfunctioning level control system
- Malfunctioning overflow or improper boiler feed pump operation
- Pressure fluctuations

### Comments or Possible Solutions

- Check setting and system operation
- Check overflow level and boiler feed pump operation

\* Often, high oxygen measurements can be traced to inadequate test procedures. In order to conduct a proper test, it is important that there be a sufficient stabilization period and steady state conditions. The proper length of a stabilization period is extremely dependent on system-specific conditions, particularly the size of the system. As a general rule, if there is a downward trend in oxygen content measurements, steady state condition has not yet been attained.