

This is the first in a series of ozone system related issues that have been encountered by Ozone Water Systems, Inc. at various life support systems all over the world. The series includes **Ozone generator problems part 1 (feed air)**, Ozone generator problems part 2 (backflow prevention), Ozone controls (interlocks), monitoring in water, OSHA safety monitoring for ozone in air, Ozone generators (line or medium frequency), ozone generators (air cooled or water cooled), and oxygen vs. air feed. Should there be any other specific items you are interested in, let us know.

Ozone Generator Problems – Part 1 (Feed Air)

Most of the readers of this article have been down this road way too many times. It is a road well traveled for some, and for others a road soon to be encountered. Buckle your seatbelts and enjoy the ride.

We are going to describe some common problems encountered with ozone generators and attempt to identify the causes. By identifying how and why these problems originate we should be able to avoid them and make the road trip less bumpy.

Ozone Generator

Let's face it, the main component in an ozone system is the ozone generator. If the ozone unit has problems it is more than likely related to the ozone generator. Most problems that cause the generator to fail don't typically occur within the generator itself – they are brought upon by factors outside the generator. Identifying the cause of a failure usually requires us to look outside of the “ozone” box (before and after the ozone generator). The feed gas before and water “back flow” is the culprit after. Most problems we encounter with ozone generators require an ozone generator repair, then an air prep upgrade or an active backflow device. So, you see when you have problems with your ozone generator they typically aren't related to the ozone unit at all.

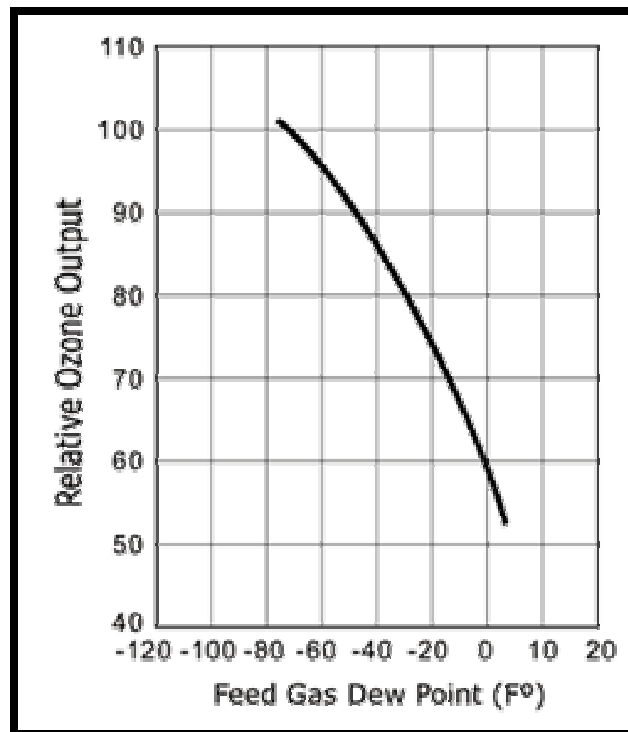
We all know the “lightning storm” in the box requires dry feed gas (either air or oxygen). Some of the ozone units out there have pressurized gas while others have non-pressure (vacuum) feed gas systems. Let us review each:

INLET FEED GAS PROBLEMS

Pressurized Feed Gas

Typically ozone generators that are water-cooled are for larger systems. They have a pressurized air preparation system that generally includes an air compressor, oil and water filters, receiver tanks, refrigerated dryers, desiccant dryers, and some even utilize an oxygen concentrator. All this stuff is great although it doesn't mean anything unless

the quality of the produced air is at least -60 degrees C. (see factory recommended dewpoint for your generator) Do you know what your dewpoint is? Do you have one of these on your system? The cost for one of these is a fraction of the cost of a generator failure associated with bad dew point. If you do not have this you can retrofit one in your system. Or during preventative maintenance visits, the dewpoint can be confirmed with a portable dewpoint monitor.



Vacuum Feed Gas

Those smaller “wall-hanger” ozone units are typically air-cooled. They often run on vacuum so they rely on the pump injector device to draw the gas through any prefilters, dryers, and the ozone generator before mixing the gas into the water. Most of these dryers utilize heat to burn the moisture from the desiccant. Vacuum dryer manufacturers do not guarantee dewpoint in humid areas. Do you have your equipment in humid areas? Almost all life support equipment is around water and in humid areas. If you have one of these systems and would like your ozone generator to last awhile-longer look into a pressurized feed gas system that can provide a consistent “dry” feed gas. Or make changes so the feed air comes from an air-conditioned room. The price of a pressurized air system is about the same as what you paid for the generator. Feed gas will make or kill these air-cooled “wall-hangers”. In most cases, you would be shocked at the dewpoint of the air you are sending to the ozone generator. And all this time you thought the ozone generator was a piece of crap. After seeing the dewpoint you will be amazed that a piece of electronics can operate so well considering how bad the air is.

If there are any questions or we can provide any additional information on anything related to this article please send an email to “overby@ozonewatersystems.com”

Stay tuned for part 2 – back flow prevention.