Build Health International

PSA Cycle Pressure Check

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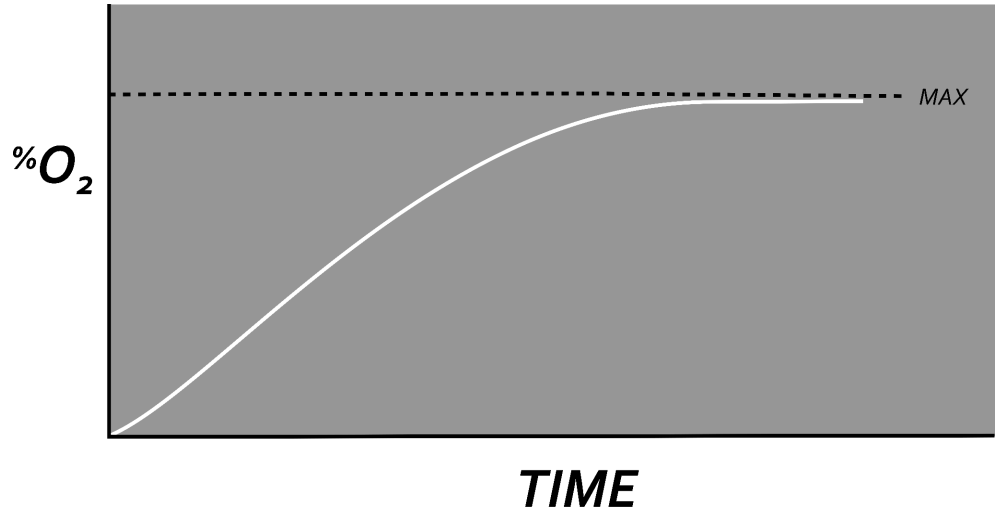
When PSA plants first start up, they will not immediately output their maximum purity. Purity will often take several cycles to build up. How long this process takes depends on numerous factors, plant size, cycle time, if there is a backpressure regulator or product valve, if the oxygen tank has pressure, etc. It can take a matter of minutes to reach the desired purity, or it can take a few hours.

Some PSA plants will not send any oxygen to the oxygen storage tank until a certain number of cycles has been reached, or until a minimum purity has been met. Other machines do not have this feature and will send oxygen to the tank immediately. It is helpful to find out how your system works.



WHAT TO DO?

Before starting up a system to use or trouble shoot, it is a good idea to isolate the output of the oxygen storage tank from any medical gas piping system it is attached to. **Once started, we recommend slightly opening up a vent valve on the oxygen storage tank to slowly vent oxygen in the tank.** We do this for two reasons:

1. To keep the PSA plant continually running so we can reach the maximum purity. Some plants may go into standby mode once the pressure in the oxygen storage tank reaches a setpoint. We want the oxygen tank to build pressure but not to reach the setpoint.

2. To constantly refresh the oxygen in the storage tank. We want to vent any low purity oxygen that may have been sent to the tank during the start up and allow higher purity oxygen to come into the tank.

We DO NOT recommend "dumping" all the oxygen in the storage tank before starting up unless directed by the manufacturer. In some machines, this causes the purity to rise slower than venting the oxygen.

When monitoring the oxygen purity it is important to:

1. Check purity readings from the PLC or onboard sensor against a handheld sensor.
2. Find where the onboard sensor is sampling oxygen from. Is it looking at oxygen in the storage tank? Is it looking at oxygen at the output of the PSA? These will make a difference in how fast the purity may seem to rise.
3. Be sure to check the purity of gas in the tank/going to the hospital before putting it back into service.

WHY DOES THIS HAPPEN?

The machine itself may have nitrogen left in the sieve beds from sitting idle. Also the purge may take time to become effective. Recall from chapter?? That the purity of oxygen leaving the PSA is directly related to how much purge oxygen is used to remove nitrogen from the venting sieve bed. When the PSA plant is first starting up, the purge may be less effective. This can be because the purge gas itself is lower purity, or because There is less purge oxygen, If the oxygen storage tank is at a low pressure more oxygen will be output to the storage tank initially. This leaves less oxygen for the purge gas.