

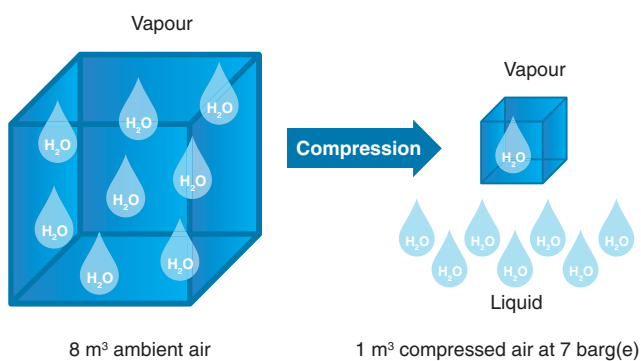
Compressed Air Treatment

Air treatment is the process of purifying compressed air to remove contaminants such as water (liquid or vapor), dust, dirt, and oil. This is important because these contaminants can cause a variety of problems in systems that use compressed air.

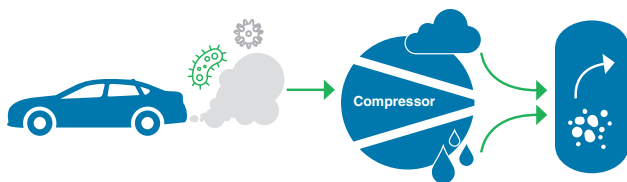
How are contaminants in compressed air formed?

Contaminants in compressed air can be formed in different ways:

- **Water vapor:** Water vapor is naturally present in ambient air and is drawn in by the compressor along with the air. When the air is compressed, the water vapor becomes more concentrated, increasing the risk of condensation.



- **Dust:** Dust and other particulate matter are present in ambient air and can be drawn into the compressor along with the air.



- **Oil:** Compressors contain lubricating oil to keep the moving parts functioning smoothly. Over time, the oil can break down and become contaminated with dirt and other particles, which can be carried into the compressed air stream. Additionally, compressors can leak oil, which can also contaminate the compressed air.
- **Wear and tear:** As compressors age and are used extensively, they can begin to wear down. This can lead to the introduction of additional contaminants, such as metal particles, into the compressed air stream.
- **Piping and hoses:** As compressed air travels through pipes and hoses, it can pick up additional contaminants, such as dirt and moisture, from the inside walls of the pipes and hoses.

What problems can contaminants form?

Contaminants in compressed air can cause various problems, depending on the specific contaminant and the application in which the compressed air is being used. Some common problems that can be caused by contaminants in compressed air include:

- Corrosion of pipe lines
- Bad quality of the end product
- Malfunctioning of controls
- Build-up of ice
- Cultivation of micro-organisms
- Damaged production equipment, leading to inefficiencies and increased costs
- Air pollution, creating unhealthy work environments
- Pollution of the condensate

The Pneumatech solution

As the leader in compressed air quality, Pneumatech offers a comprehensive range of air treatment equipment, including all types of dryers, filters, drains and (oil-)water separators. That means you can get top-quality, fully compatible air solutions from just a single source.

Producing your own nitrogen or oxygen is the smart environmentally friendly choice. Using an on-site gas generator is more cost-efficient, dependable and sustainable than gas deliveries.

How do gas generators work?

To produce your own nitrogen or oxygen, all you need is a compressor and a gas generator system.

That's because air consists of 78% nitrogen and 21% oxygen. When you feed compressed air into a nitrogen generator, it separates the N_2 from the O_2 . There are two main technologies to produce nitrogen or oxygen:

PSA:

Pressure Swing Adsorption (PSA) separates nitrogen from compressed air using a carbon molecular sieve (CMS). As the air passes through a vessel filled with CMS, the oxygen in the air is adsorbed by the CMS. This allows nitrogen to pass through with a purity of up to 99.999% to reach the outlet. PSA generators are ideal for high-purity, high-flow applications.

To generate oxygen a different adsorbent called Zeolite Molecular Sieve is used resulting in the oxygen in the air being adsorbed by the ZMS, instead of the oxygen.

Membrane:

Membrane technology is a very simple, reliable and continuous N_2 production method. Compressed air is pushed through hollow polymer membranes. The oxygen in the air premeates through the fiber walls and escapes into the atmosphere. This leaves quality nitrogen with a purity between 95% and 99.5% at the generator outlet.

The benefits of on-site gas generation:

1. On-site gas generation offers convincing benefits compared to liquid or gaseous N_2 or O_2 deliveries:
2. Cost efficiency: Producing your own nitrogen or oxygen with the purity you need allows you to significantly reduce your cost of gas.
3. Sustainability: Eliminate the transport emissions that gas deliveries generate. In addition, Pneumatech's on-site generation solutions are super efficient, minimizing your energy use and your environmental footprint.
4. A reliable nitrogen or oxygen supply: No need to count on external vendors. On-site generation gives you complete control over your nitrogen supply.
5. No logistics: Say goodbye to always monitoring your N_2 or O_2 supply, working with vendors, and tracking and handling deliveries.



Greater cost-efficiency
saves you money



Eliminating bottle or liquid
deliveries reduces your
environmental footprint



Take charge of your own
nitrogen supply



Less hassle by removing
supply logistics

The Pneumatech solution

Pneumatech's nitrogen and oxygen generators are available with Pressure Swing Adsorption (PSA) technology, resulting in nitrogen purities up to 99,999% and oxygen purities up to 95%. Membrane technology is also offered for nitrogen purity levels up to 99,5%. Pre-defined high-pressure nitrogen skids are available as a plug-and-play solution for various applications.