# The economic and environmental benefits of on-site nitrogen generators

The required quantity of nitrogen can either be provided by the supplier in cylinders or generated by the nitrogen generator at the point of use. On-site nitrogen production systems provide valuable pipeline services to a variety of industries. Two of the benefits of this are the positive financial and environmental impact. Let's explore this in more depth.

Are the arguments against supplier supplied nitrogen justified?

Industrial systems that require gaseous nitrogen to drive their production processes often require large quantities of the gas. External suppliers can supply sufficient quantities of this gas， but there are disadvantages to this approach.

The supply of nitrogen in cylinders puts plant managers in a state of dependency， and disruptions in the gas supply chain can have a negative impact on production schedules.

In order to pre-empt shortages， plant operators may decide to stockpile cylinders as a back-up. However， this creates a whole new occupational hazard for plant personnel， as well as taking up valuable industrial floor space that could otherwise be used to store other critical production equipment.

How nitrogen generators save money

Some manufacturing industries use large quantities of nitrogen in their production and packaging processes. Nitrogen generators solve most of the challenges faced by cylinder-based supply strategies. While on the face of it， choosing nitrogen cylinders may seem like the cheaper option， this is far from the truth.

After the initial installation period， the cost advantages of an on-site nitrogen system will quickly become apparent. Nitrogen generators require only regular maintenance and do not place a recurring burden on the operating budget. With cylinder systems， on the other hand， an allocation for regular purchases must be included.

In addition， the nitrogen cylinders are never really emptied as there is a minimal amount left unused， although the cost is specific to the filling weight of the cylinders. This therefore amounts to a long-term waste of gas. In contrast， on-site installations ensure that only the required amount of gas is generated and fully utilised.

In addition， the use of a nitrogen generation system will significantly reduce the risk of costly supply interruptions. The presence of an on-site generator means that the required quantity of gaseous nitrogen can be generated 24/7， regardless of production schedules. This elimination of gas supply failures will increase process efficiency and boost overall productivity.

Nitrogen generators and the environment

Nitrogen generators offer significant eco-friendly advantages over cylinder-based supplies.

Among the many environmentally friendly benefits are the elimination of harmful chemical preservatives from commercially packaged foods. Nitrogen can be used in modified atmosphere packaging to drive out oxygen and create a vacuum to prevent easy spoilage. Most bacteria need oxygen to survive and they cannot multiply in a nitrogen-rich environment， meaning packaged foods have a longer shelf life.

Gases supplied in cylinders are transported from production sites to the industries that need them. This means that more transport vehicles produce emissions， which increases the overall carbon footprint. The use of nitrogen generators allows facility managers to reduce their carbon emissions by eliminating the need for transportation.

Finally， nitrogen cylinders eventually become old and unusable， with nowhere to go but landfill. The disposal of used gas cylinders is a major concern for facility managers. Improper disposal can expose them to sanctions from environmental protection agencies. The use of on-site generators can eliminate this concern.

Industries that benefit most from on-site nitrogen systems

A number of industries benefit from the integration of on-site nitrogen generators in their production processes. Some key examples are outlined below.

Hazardous chemical manufacturing. Nitrogen is required for environmental/equipment inerting and capping.

Food processing industry. Food grade nitrogen is used to create a modified atmosphere within the packaging.

Alcoholic beverage manufacturing. Nitrogen is used in breweries and winemaking to ensure the creation of desirable flavours and aromas.

Electronics and metal fabrication. Gaseous nitrogen soldering is used to create high quality surface finishes for electronic components. In addition， nitrogen is used in steel plating processes.

Pharmaceutics. Nitrogen is an integral part of the synthesis of various drugs， including life-saving antibiotics.

Mining. Mining is a very high-risk job and the highest standards of industrial safety must be maintained at all times. With the increased risk of explosions and fire outbreaks， nitrogen generators can be installed to safely extinguish fires in mining spaces. Similarly， nitrogen can be used in inert spaces during mine abandonment to prevent future explosions.