

# Oxygen Production Systems For Biogas Desulfurization



A Stand-alone  
Solution



# PRODUCE OXYGEN ONSITE AND ELIMINATE H<sub>2</sub>S IN BIOGAS

As a pioneer in the design and manufacture of oxygen generators, NOVAIR offers complete oxygen production solutions for the specific needs of biogas desulfurization.

Using pure oxygen to remove hydrogen sulfide is a simple and cost-effective process with proven effectiveness to:

1

## INCREASE YOUR SAFETY AT WORK

No need to store large quantities of oxygen

2

## PROTECT YOUR INSTALLATION

Protecting building materials from corrosion

3

## MAXIMIZE YOUR INSTALLATION'S PERFORMANCE

By avoiding the formation of metal sulfide

## WHY PRODUCE OXYGEN ONSITE?

Oxygen is traditionally supplied to industrial or agricultural sites by trucks and stored in high-pressure cylinders or cryogenic tanks. This method of supply is costly, polluting and causes logistical constraints as well as risks for users. Onsite oxygen production by generator is a safe, efficient alternative with many advantages:



### AUTONOMY

On-site nitrogen produced from ambient air means no more deliveries of liquid or bottled Oxygen



### NO LOGISTICS CONSTRAINTS

Eliminate recurring logistics constraints



### CONTINUOUS PRODUCTION

Oxygen available 24/7 with no risk of supply interruption



### PROVEN SAVINGS

30-60% savings



### ECO-FRIENDLY SOLUTION

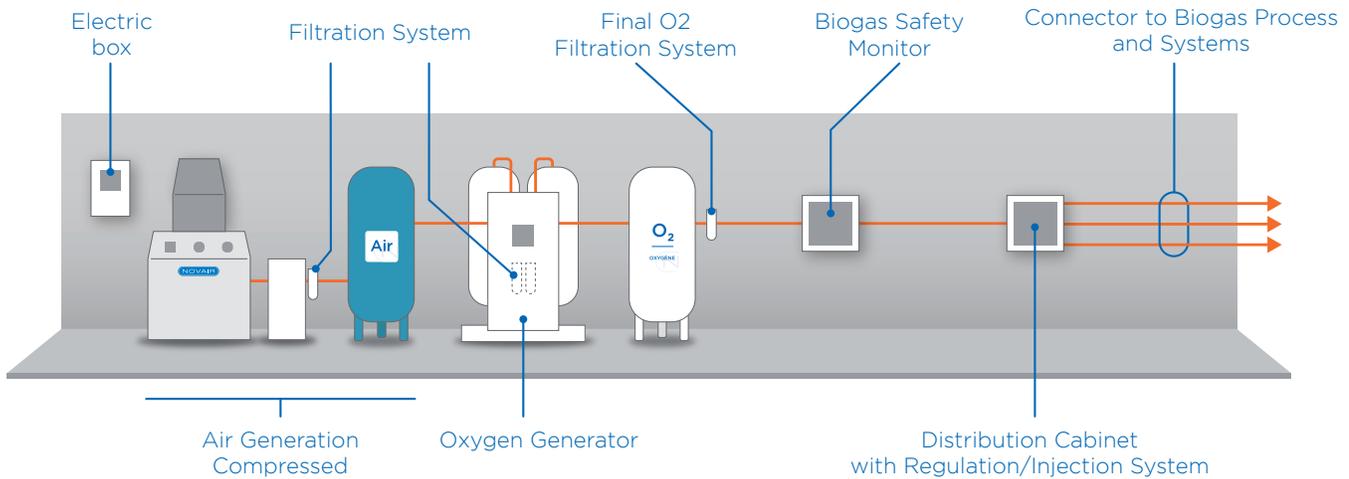
Zero delivery = zero pollutant emissions

## Did you know



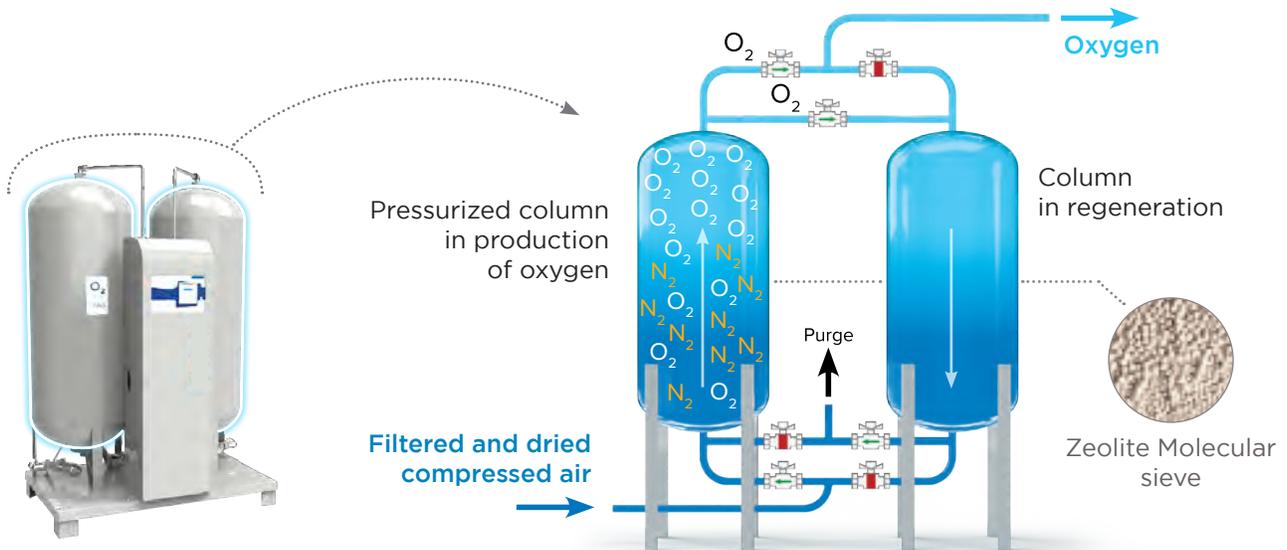
Hydrogen sulfide is both a dangerous and destructive component of biogas, with harmful effects on people, the environment, building materials and substances. For this reason, eliminating hydrogen sulfide makes a decisive contribution to the optimal operation of a biogas plant. Biological oxidation using oxygen from the air is a common method of biogas desulfurization, but the use of pure oxygen significantly increases the efficiency of the process. To achieve this, oxygen is injected into the gas stream of the digester or post-digester at the level of the activated carbon.

## Complete installation



## PSA technology, mastered by NOVAIR for 30 years.

NOVAIR's Oxygen Generators use PSA (Pressure Swing Adsorption) technology allowing it to extract oxygen from ambient air.



- 1** The air is compressed, filtered and dried to be injected into a column with zeolite molecular sieve with selective adsorption properties.
- 2** Under the effect of the pressure regulated by a programmable logic controller PLC, the molecular sieve allows oxygen to filter out and traps water vapor and nitrogen, which are present in the air.
- 3** To ensure a continuous flow, two columns are alternately used. When one column supplies oxygen, the other column is regenerated by releasing the adsorbed nitrogen into the atmosphere.
- 4** The oxygen produced is analyzed in real time and supplied to the production site.

# NOVAIR SOLUTION ENABLES BIOGAS DESULFURIZATION WITH OXYGEN IN COMPLETE SAFETY

NOVAIR designs and manufactures all the components of the on-site oxygen production solution for biogas desulphurisation. The solution integrates a compressed air supply, an oxygen generator, a system for regulating the flow of injected oxygen and a safety device that prevents any backflow of biogas into the oxygen tank, thus avoiding any oxygen/biogas mixing.

NOVAIR offers a complete range of generators that meet all requirements in terms of flow rate, pressure and purity for injection into the gas ceiling and/or the activated carbons.

Oxygen Concentration

Up to 96 %

Pressure

Up 2,200 PSI (151 Bar)

Flow

As needed from 20 SCFH (9.8 LPM) to 5500 SCFH (2,596 LPM)

Twin Tower Generator  
NOVAIR's OG Line



55 PSI (3.8 bar)  
93% +/-3% Oxygen Concentration

Mobile Oxygen Generating Systems MOGS CFP

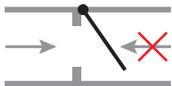


Cylinder Filling up to 2,200 PSI (152 bar)  
93% +/-3% Oxygen Concentration

Compact Plug and play Generator

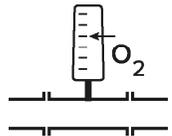


20 PSI (1.4 bar)  
93% +/-3% Oxygen Concentration



## «No-return » safety device

For the biogas application, NOVAIR has developed a device to prevent the backflow of biogas into the oxygen. A control system developed for complete safety, in accordance with risk analysis methods.



## Injection control system

Installed downstream of the generator, the system controls the flow of oxygen injected according to the volume of biogas treated. This control system incorporates a flow limiter to prevent the injection of too much oxygen, thus avoiding the risk of explosion.

## INTEGRATION SOLUTIONS

NOVAIR solutions are available for installation to be integrated into an on-site technical room or 'Plug-and-Play' container



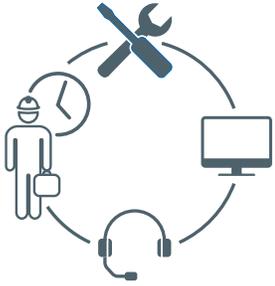
« Plug and Play » container



Technical room

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# MANUFACTURER'S SERVICE GUARANTEED MAINTENANCE



NOVAIR provides you with a range of services from qualified technicians who will ensure your systems operate optimally at all times by providing you with rapid assistance over the phone, or right on-site.

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## EXPERTISE RECOGNIZED WORLDWIDE



### NOVAIR, expert in on-site gas production

Founded in 1977, NOVAIR is a French manufacturer recognized worldwide for its nitrogen and oxygen production solutions by generators. NOVAIR USA, a member of the NOVAIR Groupe, is based near Buffalo, New York.



### Custom-engineered solutions

Backed by 45 years' experience and ongoing investment in R&D, NOVAIR designs on-site gas production solutions tailored to the needs of each industrial application. In addition to the oxygen or nitrogen generator, NOVAIR integrates all the peripheral equipment required to ensure optimum response to the demands of each process. NOVAIR is structured according to ISO 9001:2015 and ISO 13485:2016 management.



NOVAIR exports turnkey systems for the healthcare and industrial sectors to over 150 countries worldwide through a vast network of certified distributors, and has thousands of oxygen and nitrogen generators installed worldwide. Let us know and we would be happy to put you in touch with one of our satisfied customers.

# A RANGE OF SOLUTIONS AND SERVICES

## INDUSTRIAL GASES IN COMPLETE CONFIDENCE

### Synergy

NOVAIR offers a complete range of solutions tailored to the needs of each healthcare and industrial application due to the synergy created from years of field experience in all sectors as the global expert in gases.



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