



COMPRESSED GAS TECHNOLOGIES INC.
The Gas Generation Specialists



APPLICATIONS



Food Packaging & Processing:

Modified Atmospheric Packaging is a proven method for extending shelf life without using chemical food preservatives. Almost every type of snack food can be packaged with nitrogen. These include potato chips, dried meat snacks, pre-cut fruits and vegetables, nuts, crackers, and cookies. The use of extremely dry nitrogen inside food packages eliminated moisture problems. Reduced oxygen content also diminishes the oxidation and discoloration of food.



Food Preservation (Controlled Atmospheric Storage):

When fruits and vegetables are stored at their optimum temperature, their respiration rate is reduced. A nitrogen purge lowers the oxygen levels inside the storage facilities down to 2-5%, further reducing the fruit's respiration rate. When apples are stored at their optimal temperature, they can last for 2-3 months. But, by reducing the oxygen level inside the storage warehouses with nitrogen, these same apples can be stored for over a year. For many perishable fruits, particularly apples, bananas, pears, berries, and kiwis, the quality of freshness can be significantly prolonged by storage in refrigerated warehouses filled with a balanced atmosphere of nitrogen, oxygen, and carbon dioxide.



Chemical Processing & Blanketing:

Production, storage, handling, and blanketing of chemicals will sometimes require the use of chemically inert nitrogen. Nitrogen is used by the chemical industry to protect against the danger of fire, moisture contamination, and discoloration or product degradation that result from atmospheric moisture and oxygen.



Laboratory Nitrogen:

Nitrogen is used within the laboratory in a wide range of applications because of its relative inertness, chemical inactivity and non-combustibility. Nitrogen is used as a carrier or make-up gas for gas chromatographs; as an inert atmosphere within glove boxes and fume cupboards and for instrument purging of mass spectrometers and inductively coupled plasma applications.



Tire Filling:

The aircraft industry, racing teams, and US Military have been using nitrogen to inflate their tires for years now. Nitrogen has been proven as the best choice for maintaining proper pressure in tires, therefore adding to the life of the tires, improving gas mileage, and ensuring the rims are not damaged due to corrosion. Nitrogen, being a significantly larger molecule than oxygen, will not permeate through the tire wall, thus nitrogen does not have the tendency to leak out of the tire, causing low tire pressure. Nitrogen filled tires will increase safety, improve gas mileage, and reduce operating costs, while improving the performance of the vehicle.

MIDIGAS NITROGEN GAS GENERATORS

MIDIGAS nitrogen gas generators produce nitrogen gas from compressed air and offer a cost-effective, reliable and safe alternative to traditional nitrogen gas supplies such as cylinder or liquid.

Nitrogen is used as a clean, dry, inert gas primarily for removing oxygen from products and/or processes.

MIDIGAS provides an on-demand, continuous source of nitrogen gas which can be used in a wide range of industries such as food, beverage, pharmaceutical, laboratory, chemical, heat treatment, electronics, transportation, oil and gas and laser cutting.

How it Works

MIDIGAS operates via the pressure swing adsorption (PSA) principle to produce a continuous stream of nitrogen gas from compressed air. Pairs of extruded aluminium columns are filled with carbon molecular sieve (CMS). Pre-treated compressed air enters the bottom of the 'online' column and flows up through the CMS. Oxygen and other trace gases are preferentially adsorbed by the CMS, allowing nitrogen to pass through. After a pre-set time the on-line column automatically switches to regenerative mode, venting contaminants from the CMS. Carbon molecular sieve differs from ordinary activated carbons as it has a much narrower range of pore openings. This allows small molecules such as oxygen to penetrate the pores and separate from nitrogen molecules which are too large to enter the CMS. The larger nitrogen molecules by-pass the CMS and emerge as the product gas.



Features:

- Nitrogen flows from 0.3 scfm to 14.4 scfm
- Nitrogen purity adjustable from 95% to 99.999%
- High efficiency compressed air pre-treatment package
- Oxygen analyzer with alarm capabilities
- Flow meter
- High pressure capabilities - up to 160 psig outlet
- Compact space saving design
- Flexible modular design
- High efficiency CMS
- Service due indicators
- ECO Mode - energy savings during low demand

Product Selection

| Oxygen Content | | | | | | | | | | | | |
|----------------|--------------------|--------|--------|--------|--------|------|------|------|------|------|------|------|
| MODEL | UNIT | 10 ppm | 100ppm | 250ppm | 500ppm | 0.1% | 0.5% | 1.0% | 2.0% | 3.0% | 4.0% | 5.0% |
| MIDIGAS2 | m ³ /hr | 0.55 | 1.2 | 1.5 | 1.9 | 2.4 | 3.4 | 4.3 | 5.8 | 7.2 | 8.4 | 9.4 |
| | cfm | 0.3 | 0.7 | 0.9 | 1.1 | 1.4 | 2.0 | 2.5 | 3.5 | 4.2 | 4.9 | 5.5 |
| MIDIGAS4 | m ³ /hr | 1.2 | 2.4 | 3.2 | 3.9 | 4.7 | 6.9 | 8.5 | 11.6 | 14.3 | 16.7 | 18.8 |
| | cfm | 0.7 | 1.4 | 1.9 | 2.3 | 2.8 | 4.1 | 5.0 | 6.8 | 8.4 | 9.8 | 11.1 |
| MIDIGAS6 | m ³ /hr | 1.5 | 3.2 | 4.2 | 5.3 | 6.5 | 9.5 | 11.5 | 15.2 | 18.7 | 21.7 | 24.5 |
| | cfm | 0.9 | 1.9 | 2.5 | 3.1 | 3.8 | 5.6 | 6.8 | 8.9 | 11.0 | 12.8 | 14.4 |

Performance data is based on 7 bar g (100 psi g) air inlet pressure and 20° - 25°C (66° - 77°F) ambient temperature.

Weights and Dimensions

| MODEL | Height ins (mm) | Width ins (mm) | Depth ins (mm) | Weight lbs (kg) |
|----------|-----------------|----------------|----------------|-----------------|
| MIDIGAS2 | 41.36 (1034) | 18 (450) | 18.84 (471) | 216.1 (98) |
| MIDIGAS4 | 41.36 (1034) | 18 (450) | 25.6 (640) | 319.7 (145) |
| MIDIGAS6 | 41.36 (1034) | 18 (450) | 32.36 (809) | 432.1 (196) |

Technical Specifications

| | |
|-----------------------------------|---------------------------------|
| Ambient temperature range: | 41-122 °F (5-50 °C) |
| Nitrogen outlet pressure: | up to 160 psig (11 bar g) |
| Min. air inlet pressure: | 87 to 189 psig (6 to 13 bar g) |
| Inlet air quality: | Dewpoint: -40 °F |
| | Particulate: <0.1 micron |
| | Oil: <0.01 ppm |
| Electric supply: | 230 V/1ph/50Hz or 115V/1ph/60Hz |
| Inlet/outlet connections: | ½" NPT |

Standard Accessories

- Oxygen analyzer for continuous monitoring of nitrogen purity
- Flow verification kit
- Analog outputs for remote monitoring
- Alarm connections
- Noise reduction



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