IGS Innovative Gas Systems
Generon Gas Membrane Technology and Manufacturing Leadership

- Highest Efficiency Membranes in the market
- Over 60 Patents covering membrane and module manufacturing technology and application
- 20 years of continuous improvement in membrane performance
- New breakthroughs and new products ready for introduction

From Concept to Completion, We Provide Solutions!
Generon IGS is the leading manufacturer and supplier of state-of-the-art air separation membrane products and technology. Generon has been and continues to be a leader in the application of membrane technology for gas separations through the crafting of innovative products for the most demanding customer needs over the past 25 years.

Cutting Edge Research and Manufacturing at Generon’s California Campus

The foundation of Generon’s technology stems from Dow Chemical’s Polymer Research Group, which screened hundreds of polymers in the 1970’s and 1980’s before selecting the optimum combination of gas permeability and selectivity. This polymer work has allowed Generon to lead the industry in the delivery of high productivity nitrogen solutions for over 20 years. Generon holds 15 patents covering the process of converting the polymer into hollow fibers about the size of a human hair. Specialized technology is required to balance fiber strength and gas flow characteristics to optimize fiber performance. Generon holds 20 patents covering the technologies used to bundle our polymeric fiber into completed modules. Each module has up to 1-million fibers and it is critical that each fiber be bundled in a way that insures that each fiber contributes to the gas separation process. Generon’s technology development over the past twenty years has improved membrane separation efficiency by 500%! Generon’s R & D efforts are continuing to improve performance into the future.

History of Gas Separation Technology

- **1960**: First Hollow Fiber Membranes Made
- **1970**: First Applications for Liquid Separations
- **1980**: Products for Air Separation Commercialized- Generon Born
- **1990**: Generon Develops Second Generation of Custom Membranes – High Purity N2
- **2000+**: Generon Develops Dehydration Membrane and Advanced Air Separation Polymer

The membrane separation of gases is simple in concept. At the heart of the technology are polymeric membrane materials that allow for the rapid passage of one gas while minimizing the passage of another when applying a pressure gradient across the membrane. This figure demonstrates the relative rates of common gases with the focus on the separation of O2 from compressed air to provide a high purity N2 stream. Generon’s polymer has the best properties for allowing the fast gases to permeate the membrane relative to the slow gases, resulting in the most efficient membrane performance and lowest unit power consumption.

Membrane materials are formed into hollow fibers to provide high surface area for high volumetric gas processing rates. Generon holds many patents on the packaging of these hollow fibers into highly efficient modules. The combination of the highest performing polymer and the best fiber bundling techniques, result in Generon having the most efficient modules in the industry. This results in energy savings and space savings for our customers.

The membrane module may contain millions of fibers. Compressed feed air is passed down the bores of the fibers at one end of the module with the enriched nitrogen product gas exiting from the opposing end. Oxygen and water vapor are selectively removed and vented away from the feed air as it flows to the other end of the module. The Generon high performance membrane maximizes the passage of waste gases while keeping the nitrogen loss to a minimum while maintaining a history of reliability unmatched in the industry!!!

Generon IGS combines the best available membrane materials with state-of-the-art fiber bundling and the optimum module fabrication methods to provide the most cost effective solution for on-site nitrogen production…..and we have over 60 patents to prove it!
Generon is the Best Choice for Your Nitrogen Needs

Membrane N2 Generators are not only cost effective, but are compact, lightweight, portable and tunable to your exact purity needs. Even greater savings can be achieved at lower nitrogen purities.

The intrinsic properties of Generon polymer make it the most energy efficient membrane on the market. The power efficiency of Generon membrane products alone can save the average customer thousands of dollars over the life of a system.

New Polymer will yield a dramatic jump in membrane efficiency. Value shown is an estimate which is being confirmed in field trials.

Over a 500% Productivity Improvement since Generon’s Commercialization in 1984 through 2005 with more advances on the horizon.

Generon IGS Membrane Systems Provide Solutions for Industrial Applications

- Over 20 years of membrane and system design experience
- State-of-the-art manufacturing sites-Texas, California, China, Italy
- Supplier of standard and custom engineered systems for………..

The Oil and Gas Industry-

Providing engineered systems since 1993 to the oil and gas industry-containerized or skid mounted system which are portable, compact, light-weight and reliable. These systems are perfect for offshore applications.

The Shipping Industry-

Membranes are increasingly used for shipboard system taking advantage of their light weight, compact size

The Food Industry-

Membrane system can make “tailored” purity N2 for the storage of various food products.

The Tire Filling Industry-

Membranes have become the tool of choice for filling car and truck tires to extend tire life and improve road safety. Generon serves this industry segment through highly-qualified market specialists.

Generon Produced N2 can be 25% the cost of Liquid N2 and 5% of cylinder N2 cost.

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