

PSA vs. Membrane

PSA has been used for over 20 years to produce nitrogen in the world market and there are more PSA generators in operation than any other type of technology.

Industries that require long term, reliable, and consistent purity at high volumes of gas, working in harsh dirty climates such as oil platforms, heavy industry and even the space industry choose PSA Nitrogen. They do so because it is reliable.

Important Facts:

- PSA has more nitrogen capacity at higher purities. Membrane capacity to produce nitrogen will drop 61% when you increase nitrogen purity from 95% to 99%
- The repair cost on a PSA nitrogen separator is hundreds of pounds versus thousands for membranes.
- PSA generators are less sensitive than Membranes. Membrane generators are more sensitive to both oil and water incursion, rendering the use of air dryers for the compressors providing membrane systems more crucial than PSA units. PSA units would continue to operate because they are far more moisture-forgiving. Replacement is necessary if damaged by oil.
- PSA generators produce the same amount of gas annually losing no capacity. Membranes are bio-degradable, meaning they will produce less nitrogen from year to year.

Additionally, PSA generators will maintain the same purity of nitrogen year after year. On the other hand, Membranes lose the ability to maintain purity levels each year due to the drop in gas production capacity.

- PSA requires less air than Membrane to produce high purity nitrogen. A PSA generator needs only 2 cubic feet of air to produce 1 cubic foot of gas at 98% purity, or in other words 33% less air than a membrane.



- Most companies who oppose PSA systems do so because they do not have the engineering expertise to manufacture PSA systems.
- Consider this: The only moving parts in a PSA system are four simple valves rated for four million throws and a simple cam timer. We have calculated that the time till repair (not part failure) of our PSA systems is over 41,000 operating hours. At a 12 hour day continuous operation, 365 days per year, this signifies an operating time of 9.3 years before the system requires ANY repair.
- In cold weather, a PSA generator will gain 0.3% for every drop in degree of ambient temperature below the operating ambient temperature (24°C). Membranes will lose this capacity when the temperature drops in the shop below membrane ambient operating temperatures normally quoted at 20°C or 24°C.

For these reasons, organisations that need consistent nitrogen capacity annually and purity flows choose PSA. Organisations looking for generators to work tough environments and changing conditions choose PSA. Organisations looking for maximum returns of operating capacity to cost choose PSA.

In House Gas (manufacturing) Ltd, Baptiston House, Killearn, Scotland G63 9LE

Tel: +44 (0) 1360 551600 Fax: +44 (0) 1360 551555 info@inhousegas.com

www.inhousegas.com