

US Pat. No.: 6,660,648

Technology Readiness Level: 5

*Key components have been demonstrated in a relevant environment*

Sandia National Laboratories has developed semipermeable silicon nitride membranes using an etch process to be co-manufactured on a micromachined silicon surface. There is a need for a co-fabricated filtration system for enhancement of reliability and functionality in micro fluidic devices. Common polymer-based and metal based membranes are often incompatible with micromachining methods and requirements for packaging and chemical compatibility. The ability to utilize the benefits of a semi-permeable membrane without a secondary manufactured component increases functionality and integration of micro fluidic devices and lab-on-chip applications.

## TECHNICAL BENEFITS

- Monolithic integration of filters for Lab-on-a-Chip products
- Eases cost and complexity of manufacturing
- Robust
- Permeability control at time of manufacture
- Compatible with a wide range of silicon

## INDUSTRIES & APPLICATIONS

- Lab-on-a-chip
- Microfluidics (gas and liquid)
- Sample filtration
- Fuel cells

