



Sandia National Laboratories

Semipermeable Membranes for Micromachined Silicon Surfaces

POTENTIAL MARKET APPLICATIONS

Lab-on-a-Chip

Micro Fluidics
(gas and liquid)

Sample Filtration

Fuel Cells

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

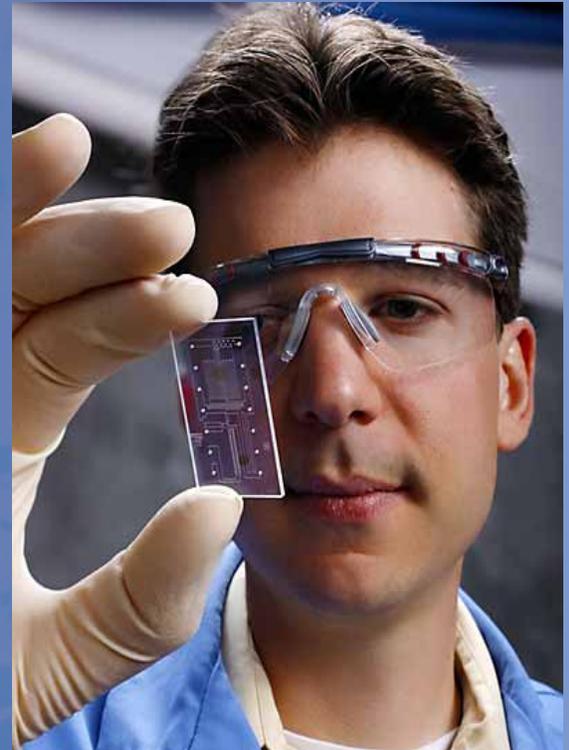
INTELLECTUAL PROPERTY

US PATENT # 6,660,648
(SD# 6474)

TECHNOLOGY SUMMARY

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 integrability of micro fluidic devices and lab-on-chip applications.



TECHNOLOGY READINESS LEVEL

Sandia estimates this technology at approximately TRL 5. Key elements of this technology have been demonstrated in relevant environments.

TECHNICAL LEAD

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Sandia National Laboratories

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