



- 1 Membrane
- 2 SEM picture of etched membrane structure
- 3 SEM picture of membrane surface

## SILICON MEMBRANE TECHNOLOGY

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### Smallest structure for Micro-/Nanoplastic and environmental analysis

Fraunhofer ISIT has developed a silicon membrane technology to create filter devices for a multitude of material analysis. The technology enables the polymer-free realization of filter structures for the analysis of micro- and nanoplastics. The filter structures are enabling the particle visualization, size determination and identification. Different coatings can be used to provide low spectroscopic interference. Numerous pore diameters can be realized for different filtration areas. Silicon membrane technology access all design dimensions of filter structures with decisive advantages compared to other techniques like aluminum oxide, PVDF, gold-coated polycarbonate or glass microfiber filters. Examples of application are: Micro-/Nanoplastics, gas and liquid filtration, diagnostics and optical filter.

### Technical specifications

Pore opening	200 nm to 1000 nm
Membrane thickness	2 $\mu\text{m}$
Coating materials	without / Al, Au
Filter diameter	25 mm
Filtration area	10 mm

### Unique advantages and possibilities

- Filter membrane structures down to 200 nm openings on 25 mm filters in diameter with 10 mm filtration area
- Flat surfaces and membrane thickness of 2  $\mu\text{m}$
- Precise regularly distributed pores with openings between 200 and 1000 nm
- Different coatings like e.g. aluminium or gold
- Numerous degrees of freedom in geometry dimensions
- Advantages compared to other manufacturing techniques: low spectroscopic interference