

SmartPor

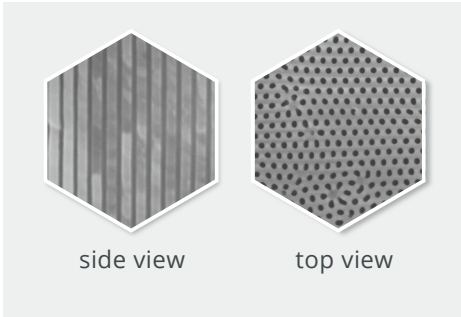
Nanoporous Alumina FactSheet



PORE GEOMETRIES

Nanoporous alumina can be processed standardly in a selfordered regime. The pores can be etched in a high ordered regime with a perfectly periodic arrangement which results in a narrow pore size distribution at a fixed pore distance.

The variety of possible structures leads to some basic parameters which define those structures:

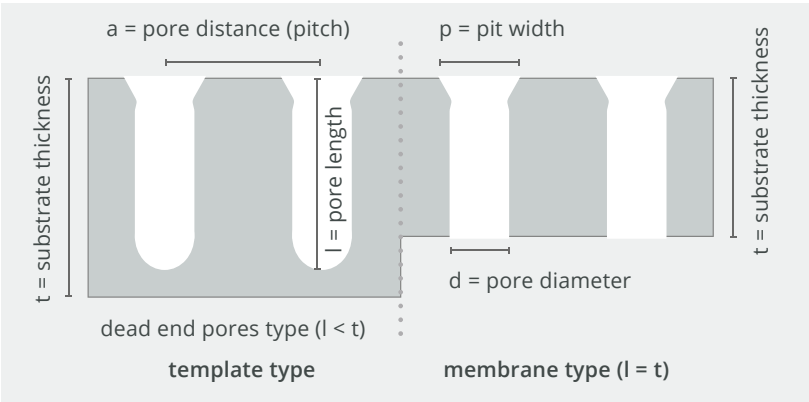


STANDARD PARAMETERS

Key parameters are the pore distance **a** and the pore diameter **d**. The pore length **l** can be etched up to the substrate thickness **t**.

The pores can be opened in a post processing step to receive flow-through membranes.

- **template type** („dead end-pores“ on Al support)
- **membrane type** (both sides open „through-pores“)



TECHNICAL DATA

Pore geometry	trigonal
Pore distance (a)	65 – 480 nm (standard stock material: a = 65 nm, 125 nm, 480 nm)
Pore diameter (d)	25 – 380 nm
Porosity (p)	10 - 55 %
Pore length (l)	0.2 – 100 µm (> 100 µm custom-made products only)
Chipsize	up to A5, custom sizes/shapes via laserdicing, small scale custom process development

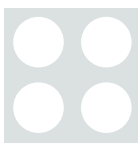
POSTPROCESSING



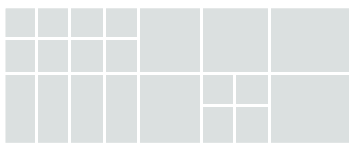
template



membrane generation



isotropic pore shaping and widening



laserdicing

Different optional post processing steps possible:
 Back-side opening for the generation of both side opened membranes, isotropic pore shaping, laser dicing.



STANDARD STOCK MATERIAL - DETAILS

	SmartPor65	SmartPor125	SmartPor480
Interpore distance	65 nm	125 nm	480 nm
Pore diameter	25 nm	40 nm	180 nm
Standard widening	40 nm	50, 60, 70 nm	200, 300 nm
Widening, upon request	up to 45 nm	up to 90 nm	up to 380 nm for 100 µm up to 350 nm for 50 µm
Pore arrangement	trigonal	trigonal	trigonal
Appearance	transparent	opaque, yellow	white
Porosity	10 – 45 %	10 – 50 %	15 - 55 %
Membrane thickness, standard	50, 100 µm	50, 100 µm	50, 100 µm
Membrane thickness, upon request	30 – 120 µm	30 – 120 µm	30 – 120 µm
Membrane size	< 140 x 190 mm	< 140 x 190 mm	< 140 mm circular
Standard tolerances	20 %	10 %	10 %



APPEARANCE AND DIMENSIONS

