EOR information
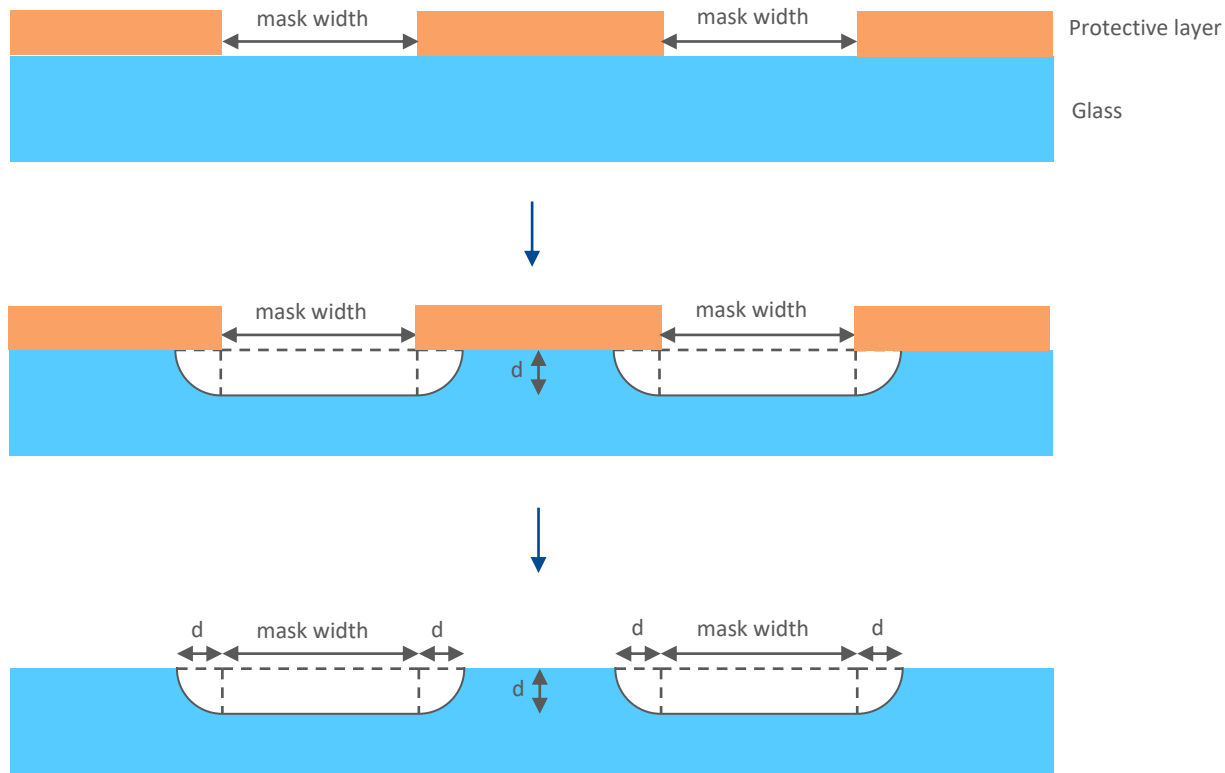
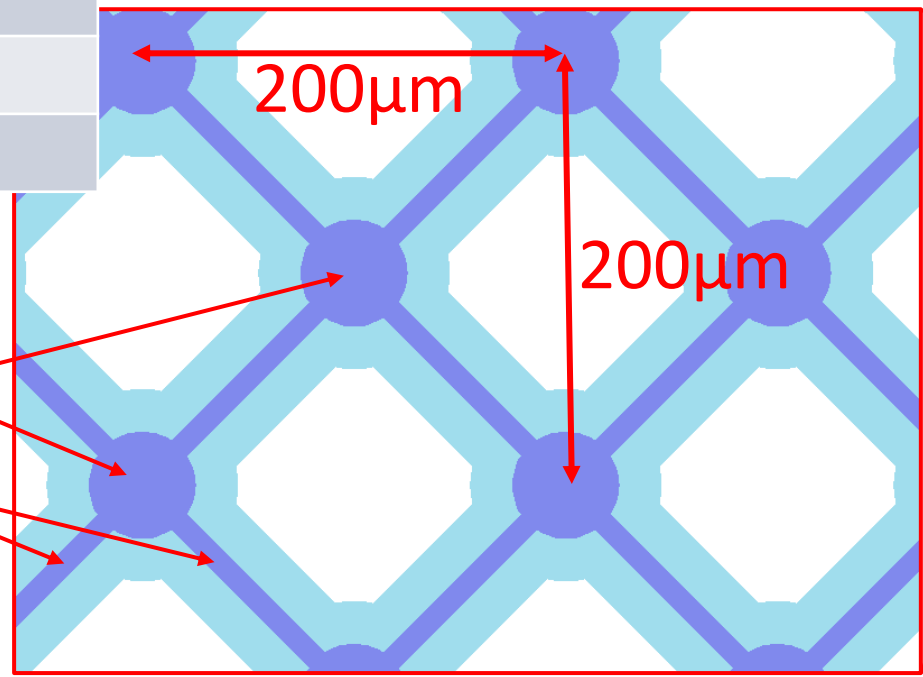Uniform network, random network and physical rock network
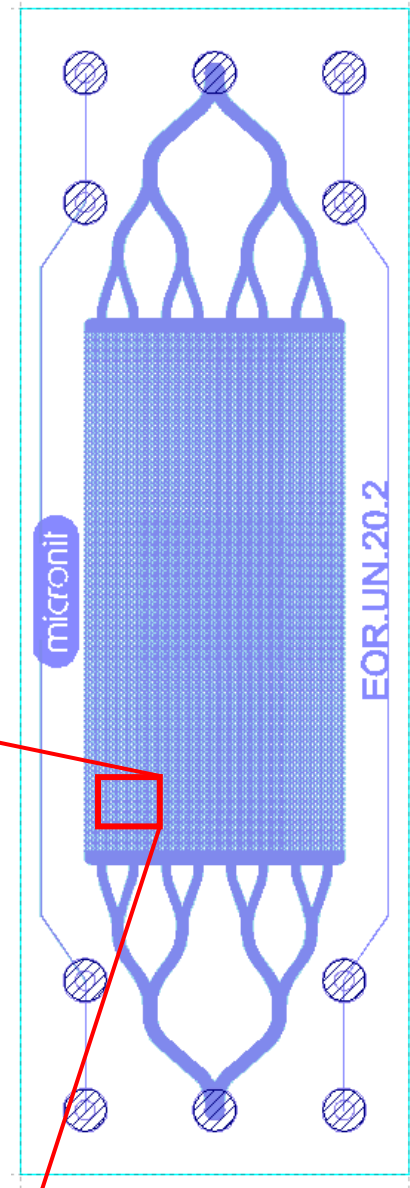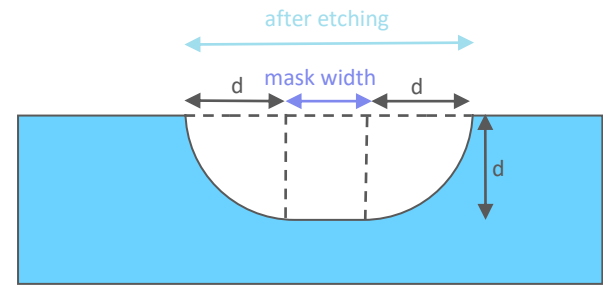
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Isotropic etching
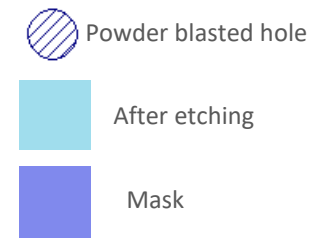

The structure in EOR chips is created by an etching process. For this reason, the channels have typical isotropic etching features, as depicted here. A piece of glass is exposed to acids that dissolve the glass equally fast in all directions. This makes the channel grow in all directions, resulting in round corners and a smaller bottom channel width compared to the top channel width.

Uniform network

Dimension throat	
After etching	50μm
Mask width	10μm
Depth	20μm

Dimension pore	
After etching diameter	90μm
Mask width diameter	50μm
Depth	20μm

Permeability: 2.5 Darcy

Powder blasted hole

After etching

Mask

after etching

mask width

d   d

d

200μm

200μm

pore

throat

EOR.UN.20.2

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Random network

After etching	Mask width	Depth	Number of times on chip
50	10	20	1429
70	30	20	1438
90	50	20	1412
110	70	20	1412
130	90	20	1531

Permeability: 1.6 Darcy
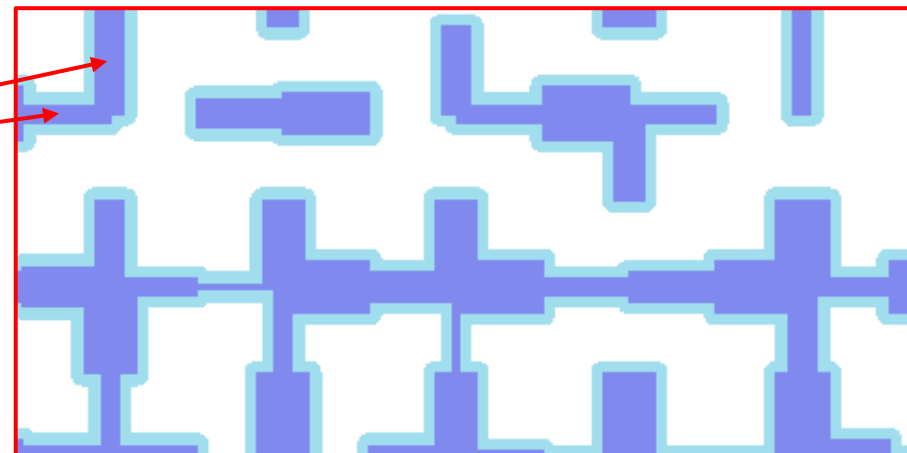
throat

Physical rock network

This chip is designed by randomly placing rock shaped structures on the chip to as accurately as possible resemble the actual shape that is obtained by cutting rock and scanning it. This random placement results in throats and channels between the rock structures. This method of random placement does not give information on throat size distribution. For simulation purposes, the mask (2D) design is available on request. However, experience has taught that this structure is too complex for running simulations on a normal computer.

Permeability: 2.5 Darcy

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