

1 **Data for Geophys Res Lett**
 2 **”The Interplay between pore-scale heterogeneity,**
 3 **surface roughness and wettability controls trapping in**
 4 **two-phase fluid displacement in porous media”**

5 **1 Grain and pore size distribution of 2D and 3D porous media**

	grain size [μm]	pore size [μm]	porosity [-]
3D glass beads	980 ± 90	273 ± 5	0.37
2D glass beads	806 ± 108	357 ± 184	0.39
3D sand	1040 ± 70	290 ± 120	0.39
2D sand-analog	891 ± 239	192 ± 65	0.4
3D sand-fine	176 ± 20	51 ± 12	0.37
2D sand	N/A	76 ± 39	0.39
3D sandstone	140 ± 20	50 ± 5	0.18
2D sandstone	N/A	57 ± 31	0.28

Table 1. Grain- and pore size distribution.

6 **2 Physico-chemical properties**

invading fluid	environment	material	θ [$^\circ$]	dyn. viscosity [Pa · s]	density [kg/m ³]
water	air	Silicon	46.8 ± 2.5	0.001	998
		Pyrex	28.4 ± 2.4		
glycerin 95 wt. %	air	Silicon	60.9 ± 2.0	0.442	1244.9
		Pyrex	50.7 ± 1.6		
n-heptane ¹	air	Silicon	< 10	3.89×10^{-4}	680
		Pyrex	< 10		
Si-oil 100	air	Silicon	18.4 ± 3.6	0.100	960
		Pyrex	17.4 ± 2.2		
air	glycerin 95 wt. %	Silicon	119.1 ± 2.0	1.83×10^{-5}	1.2
		Pyrex	129.3 ± 1.6		
n-heptane	water	Silicon	131.3 ± 7.3	3.89×10^{-4}	680
		Pyrex	144.8 ± 5.0		
water	Si-oil 100	Silicon	111.9 ± 2.7	0.001	998
		Pyrex	84.0 ± 3.0		

Table 2. Physico-chemical properties.