

INFLUENCE OF PREPARATION CONDITIONS ON THE STRUCTURE OF PHOTOCROSSLINKED SOLVOGELS

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The photo-copolymerization of an acrylic ether derivative and a bis-acrylamide in solution has been carried out to prepare solvogels. The copolymerization was monitored by real time photorheology [1]. Storage modulus over time curves of up to 5 different monomer/crosslinker ratios in 3 different solvents were recorded. Additionally, to obtain a better understanding of the network structure, low field NMR experiments [2] were carried out, showing that the gels consists of a solid phase, a mobile phase and an interphase, concluding that it can be described as a glassy sponge.

Depending on the monomer/crosslinker ratio but also on the chosen solvent, the polymerization leads to more or less dense and rigid networks (Figure 1) where the storage modulus can vary over two orders of magnitude.

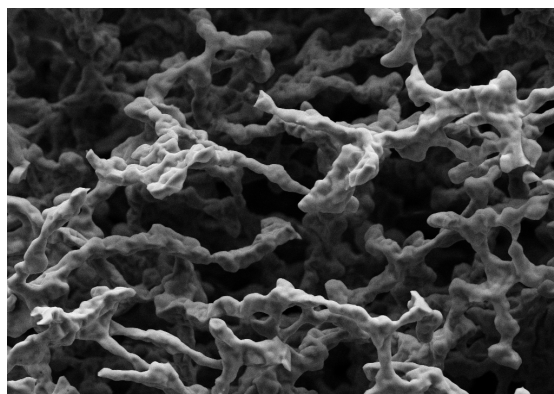


Figure 1: REM-image of a freeze-dried gel.

[1] C. Grosche et al., *Analytical Chemistry*, 89 (2017), 9, pp. 4958 - 4968

[2] K. Saalwächter, *Rubber Chem. Technol.* (2012), 85, pp. 350 - 386