Supporting Information

Electron-beam derived polymeric cryogels†

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Fig. 1 SI SEM images of the morphology of MPC-B in dependence on the radiation dose

Fig. 2 SI FT-IR spectra of the pure acrylate formulation (--), MPC-B irradiated at doses of 3 kGy (---) and 12 kGy (----). The box highlights the conversion of the double bond at 810 cm⁻¹.
Fig. 3 SI SEM images of MPC-B, MPC-C and MPC-E prepared in silanzid fused silica capillaries (ID= 200 µm)

Fig. 4 SI Temperature dependent swelling of MPC B. ■ 1. heating cycle, ◇ 1. cooling cycle (T = 25 °C), ● 2. heating cycle (T = 80 °C), ○ 2. cooling cycle (T = 25 °C)
Fig 5 SI EPR spectra of frozen aqueous solutions of 10 wt.-% PEGMA (A) and 10 wt.-% TEGDA (B); 5 wt.-% PEGMA/5 wt.-% TEDGA (C) and 5 wt.-% PEGMA/5 wt.-% TEDGA/5 wt.-% PAAm (D). The solutions were initially frozen at -20 °C to obtain the desired cryogel structure. Then, the samples were cooled down to -196 °C and irradiated at this temperature and measured at the temperatures indicated. This procedure prevents radical reactions which would proceed too fast at -20 °C to be measured. Hydroxyl radicals (marked with arrows) are present in the spectra below -155 °C, their decay does not lead to the formation of new radical species, i.e. it occurs by recombination. In
case of the methacrylate PEGMA (A) the propagating radical persists even at -20 °C due to its lower reactivity. In case of TEGDA (B) polymerisation has already finished at -20 °C and only a mid-chain (tertiary) radical remains. In solution containing PAAm an additional signal can be recognized (marked with asterisks at -155 °C) at temperatures below -123 °C, which can be attributed tentatively to aminyl radicals.