

Supporting Information

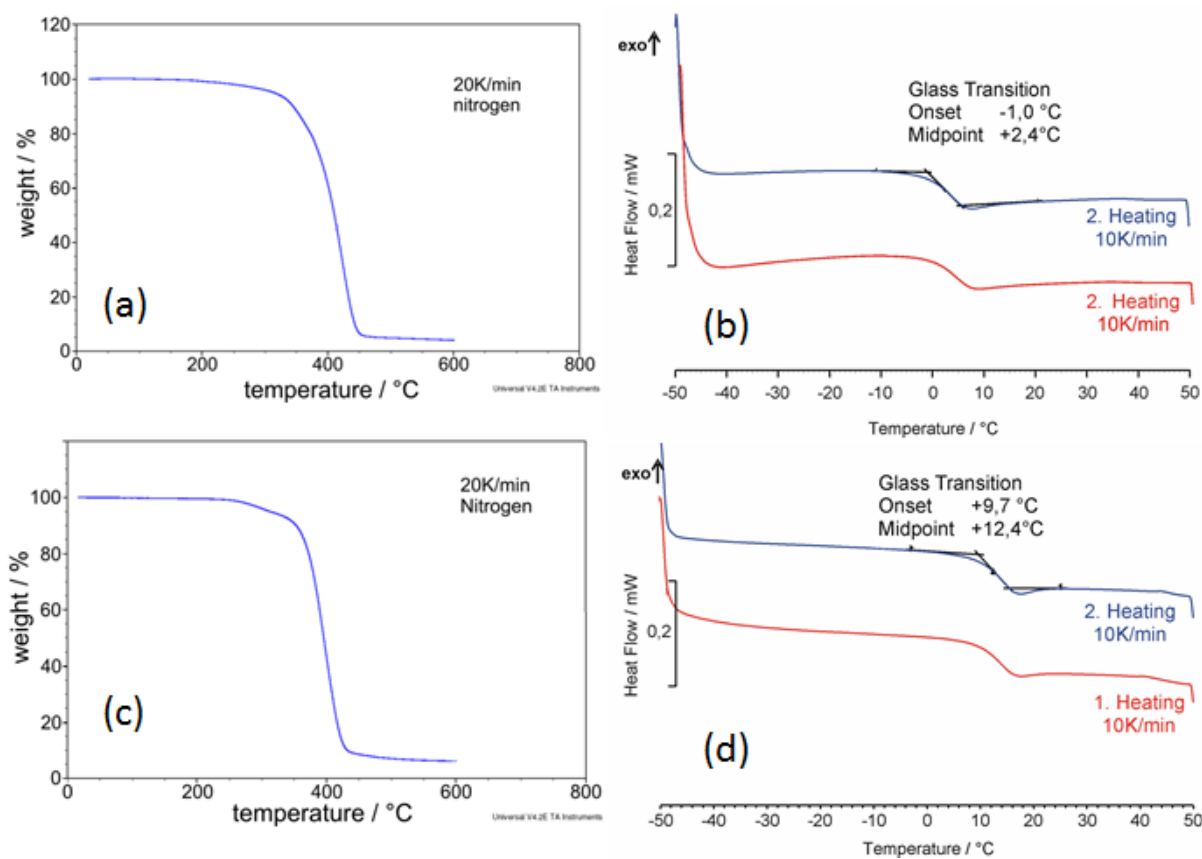


Figure S1: a) TGA, b) DSC of the homopolymer PTFEA; c) TGA, d) DSC of the homopolymer PBzA

CIS particle synthesis

The syntheses were conducted in a 1L glass reactor equipped with condenser, mechanical stirrer and inert gas inlet (Fig. S2) at a temperature of 75 °C. A precision piston pump (ProMinent Dosiertechnik AG, type micro g/5) was used to add the monomer emulsions dropwise. The monomers styrene and ethylacrylate (BASF SE), benzylacrylate (Osaka Chem.) and 2,2,2-tri fluoroethylacrylate (Fluorochem Ltd. have been distilled under reduced pressure prior to use. Butane diol diacrylate (BASF SE) and allyl methacrylate (Evonik Industries AG) have been passed over an ion exchange column (Dehibit 200, PolymerScience) for the removal of the inhibitor. Dowfax 2A1 (The Dow Chemical Company), was provided by Nordmann, Rassmann GmbH. Dowfax and all other chemicals (Sigma Aldrich) were used as provided. The demineralised water was saturated with nitrogen prior to use.

Process for sample 2: A mixture of 0.23g sodium dodecylsulfate, 280g of water, 3.5g of styrene and 0.4g of butanedioldiacrylate was filled into the reactor and subsequently the reaction was initiated by the addition of 0.1g of sodiumdisulfite and 0.2g sodiumpersulfate,

each dissolved in 5g of water. The observation of cloudiness after 10min indicated the formation of seed particles. After additional 15min a monomer emulsion consisting of 0.23g of sodiumdodecylsulfate, 0.2g of potassium hydroxide, 90g of water, 70g of styrene and 7g of butanedioldiacrylate was added dropwise at a rate of 0.9 mL/min. 30 min after the end of the addition, a solution of 0.05g sodiumpersulfate in 5g of water was added. Then a second monomer emulsion, consisting of 0.05g of sodiumpersulfate, 0.15g of Dowfax 2A1, 0.2g of potassium hydroxide, 32g of water, 12.5g of ethylacrylate, 12.5g of 2,2,2-trifluoroethylacrylate and 3g of allylmethacrylate was added dropwise at a rate of 1.4 mL/min. 20 min after the end of the addition a third monomer emulsion was added dropwise, consisting of 0.5g Dowfax 2A1, 0.2g sodium docdecylsulfate, 0.2g of potassium hydroxide, 160g of water, 68g of ethylacrylate, 68g of 2,2,2-trifluoroethylacrylate and 4.2g of hydroxyethylmethacrylate. After the addition was finished the latex was stirred for another 60min to reduce possible monomer residues.

The other samples were obtained by exchange of the monomers in the second and third monomer emulsion.



Figure S2: 1 litre stirred tank reactor

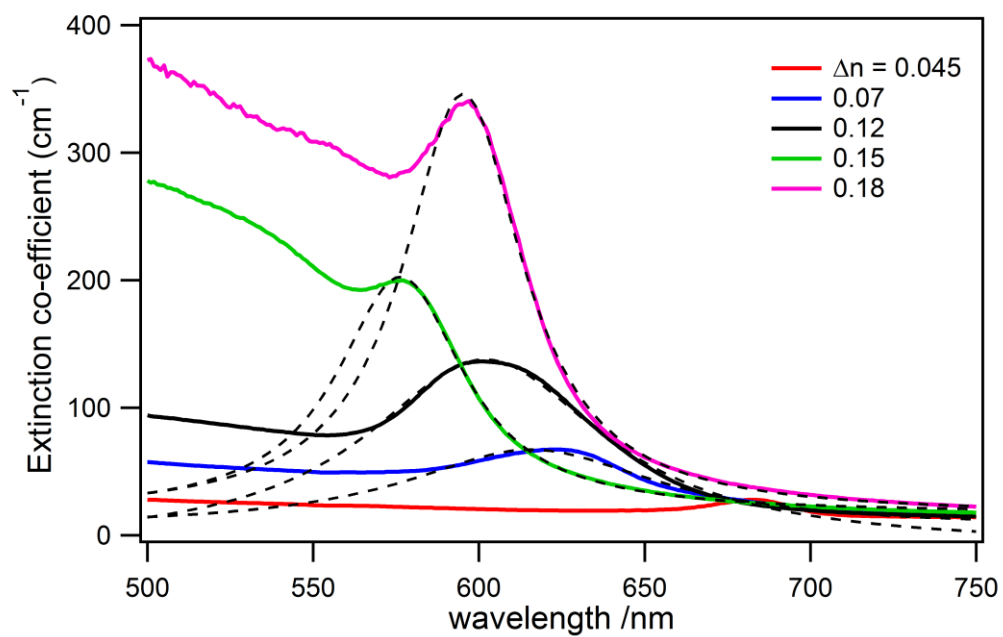


Figure S3; UV/vis spectra of hot-edge processed pieces of thin opal disks with different refractive index contrasts, as indicated. Lorentzian fitting for each of the Bragg peaks, as used to derive the FWHM values in table 2, are shown by the dashed lines.