Supporting Information to publication

"Metal Fluoride-based Transparent Nanocomposites with Low Refractive Index"

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The XRD patterns of TFA- and PFBA-stabilised MgF_2 are shown in figure S1. Due to the nanoscopic dimensions of the MgF_2 particles the reflections are very broad. Comparison with the expected reflection positions (PDF-file #1-1196) identifies the xerogel as rutile MgF_2. Addition of carboxylic acids does not induce the dissolution or ripening of magnesium fluoride or the formation of other crystalline phases.

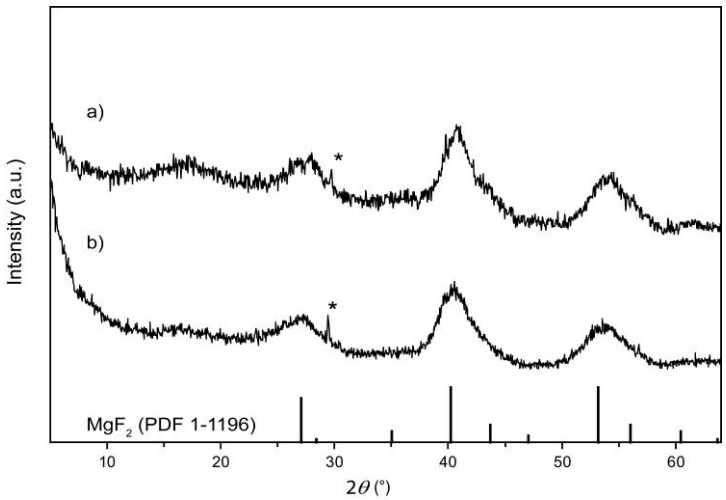

Figure S1: X-ray diffraction patterns of PFBA- (a) and TFA-stabilised MgF_2 (b) xerogels.

Figure S2 shows the refractive indices of films with different content of MgF_2 in a mixture (1:2) of Sartomer CN9010 and Sartomer SR454, applied on silicon wafers by dip-coating, dried at 80°C and polymerised by UV-irradiation. Measurements were conducted by prism coupling technique using three different laser wavelengths and calculation of refractive index and film thickness from the m-lines. Values are given as the mean of 5 separate measurements with fit errors below 0.1%. The trend of the refractive indices with the respective filler content can be qualitatively described by summation of the volume fractions of each constituent.

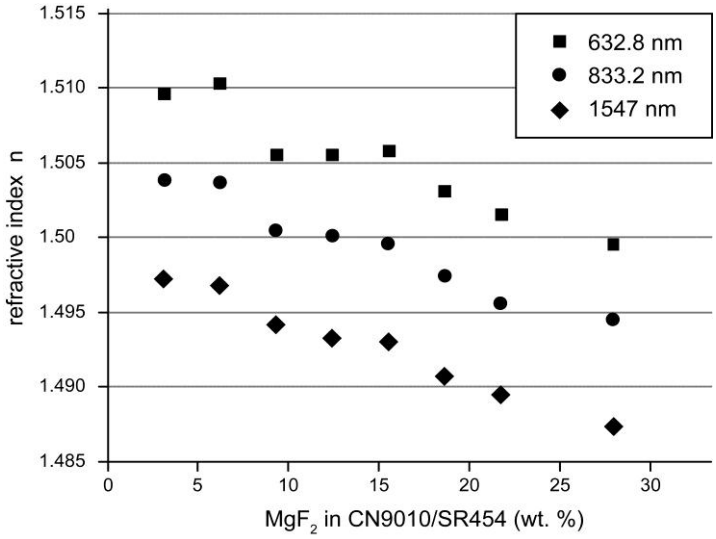

Figure S2: Refractive index of composite films of Sartomer® CN9010/SR454 with different filler content of nanoscopic magnesium fluoride; determined by m-line measurements at different wavelengths.