# High surface area of MgO micro spherical particles containing mixed matrix membrane for $CO_2/N_2$ gas separation

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Ultrasonic spray pyrolysis is an attractive way to create high purity homogeneous structures with spherical geometry. In addition, since the ultrasonic spray pyrolysis system operates continuously, mass production is possible. In this study, we synthesized MgO micro-spherical particles with bimodal pore size distribution. Synthesis was confirmed by Field-emission scanning electron microscopy (FE-SEM), transmission electron microscopy (TEM), X-ray diffraction (XRD) and Brunauer-Emmett-Teller (BET) analysis. Mixed matrix membrane were prepared by dispersing MgO microsphere filler in poly(vinyl chloride)-g-poly(oxyethlene methacylate) (PVC-g POEM) graft copolymer matrix.