



In this study, the photocatalytic ceramsite sands and photocatalytic cementitious materials were successfully prepared. The photocatalytic removal rate of benzene on photocatalytic ceramsite sand increased significantly through photocatalysis through adjusting ceramsite sands in appropriate pore structure and TiO_2 at best coating ratio, which could provide more gas diffusion, higher specific surface areas, more TiO_2 active sites, and prevent TiO_2 particles from being influenced by the envelope of cement hydration products and the carbonation of cement. It is important for application of catalysts because much cementitious materials are exposed to solar light in building construction.