

Preparation of Silica Aerogel via Supercritical Fluid Drying Technique and Its Characterization

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In recent years, silica aerogel has increasingly attracted attention due to its extraordinary properties and potential applications in wide variety technical areas. Silica aerogel is a nanostructured material with high specific surface area, high porosity, low density, low dielectric constant and excellent heat insulation properties. The supercritical fluid drying technology (SCFD), replacing the liquid in the pores with air while maintaining the three-dimensional networks of silica particles unchanged, is one of the most important ways to prepare aerogels. The present study is to prepare silica aerogels by using SCFD and investigate the effect of pressure, temperature and flow rate on the properties of aerogels. The bulk density and surface area as well as surface morphology of aerogel were measured using a mercury pycnometer, a BET adsorption equipment, and an electron microscope.

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