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Characteristics of Polymer–Inorganic Hybrid Materials (Polymer Brushes) by Gas Adsorption, DLS, and Streaming Potential Methods

Introduction

Inorganic particles immobilized with polymer brushes, which are organic–inorganic hybrid materials, are expected to exhibit the flexibility and lightness of organic materials as well as the heat resistance and durability of the inorganic materials. Therefore, understanding their structure is extremely important. In this study, we investigate the structural characterization of core–shell-type polymer brush-immobilized cerium oxide (CeO_2–PMMA, where PMMA is polymethyl methacrylate) particles (as shown in Fig. 1), which were

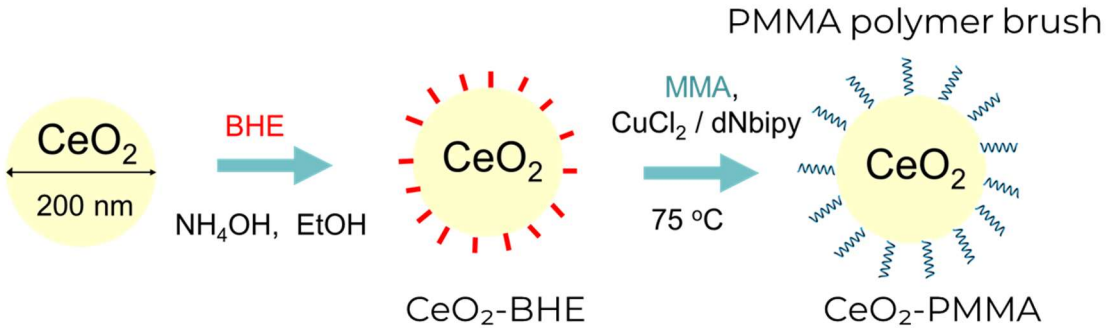

Fig. 1 Immobilization of PMMA on the Surface of CeO_2

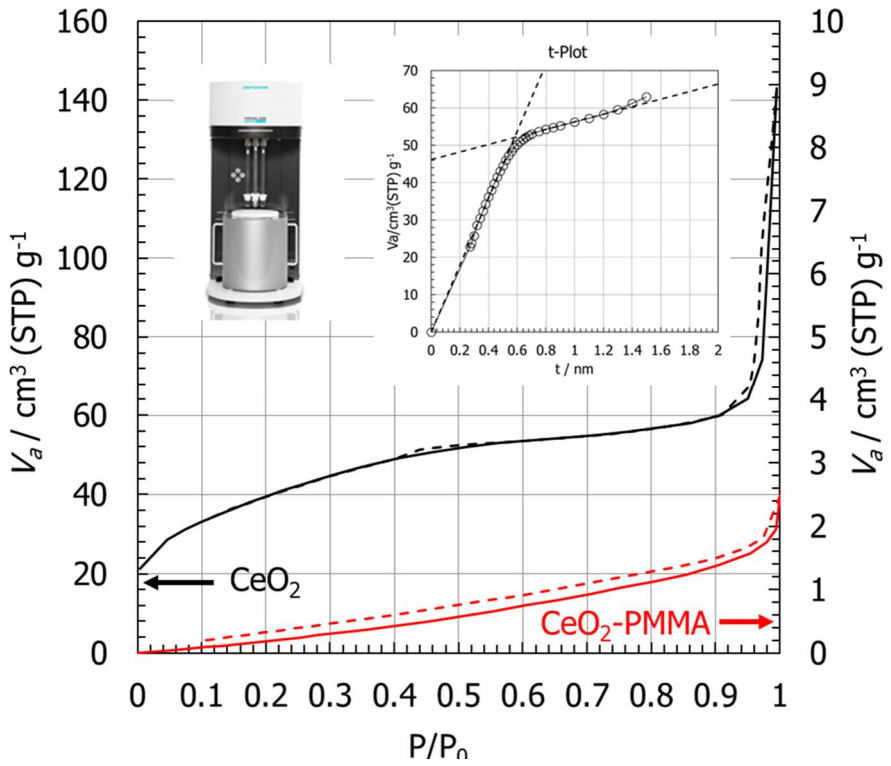

Fig. 2 Adsorption/Desorption Isotherms (N_2/77K) of CeO_2 and CeO_2–PMMA and t-Plot Analysis of CeO_2