

Abstract Submitted
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Super-Activated Microporous Carbon for Cryogenic Hydrogen Storage GREGORY MEISNER, General Motors Research and Development, QINGYUAN HU¹, Purdue University — A new high surface area microporous carbon material was synthesized by processing the carbon precursor together with the chemical activation reagent prior to carbonization and activation and removal of the non-carbon residues. The specific surface area and pore size distribution of the resulting porous carbon material mainly depended on the weight ratio of the activation reagent to carbon precursor, the processing time, and the carbonization and activation time and temperature. Optimized results were obtained for an activation reagent to carbon precursor weight ratio of 4 and processing time of 60 minutes followed by carbonizing and activating at 700°C for 4 hours. The resulting super-activated microporous carbon material exhibited an extremely high surface area of 3390 m²/g and an excess hydrogen adsorption of ~6.0 wt% at 77 K and 30 bars.

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