

439f Applications of Sorbents Developed Using Aerosol Process

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Cabot SMP is developing materials and solutions for catalyst and sorbents applications. In this manuscript, we address the importance of understanding the applications requirements and provide selected examples of application-driven particle manufacturing and processing. The implementation of fine particle solutions and development of revolutionary sorbent materials for absorption-enhanced reforming (AER) developed by Chevron Texaco Technology Ventures for production of high purity hydrogen will be discussed. The advantages of CSMP spray-based manufacturing method to produce CaO-based reversible CO₂ sorbent powders will be described. The sorbent materials produced using CSMP's manufacturing method have been formed as extrudates and shown greatly improved durability, retaining high CO₂ absorption capacity and carbonation/de-carbonation kinetics through multiple cycles required for a commercial application. The presentation will also discuss the manufacturing challenges associated with production and processing of engineered ultra-fine particles for applications in adsorption.