

Chapter 1

CLAY AND CLAY-SUPPORTED MATERIALS FOR CLEAN ENERGY STORAGE APPLICATIONS

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Abstract

The dwindling fossil energy reserves together with the need to find cleaner energy sources have intensified investigations for alternative energy sources. Solar energy, batteries and hydrogen have featured prominently amongst the most promising sources of cleaner energy. Among other challenges, the high cost of production together with limited reliable energy storage materials have contributed to the main obstacles for delayed widespread switch toward cleaner energy sources. Clay materials being abundant, environmental benign as well as having unique structural and physical properties have over the recent years been considered as potentially low cost candidates for clean energy storage either in their pristine form and/or as support materials. This chapter presents a review of recent research work highlighting the use of clay and clay-supported materials for energy storage applications.