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Review Article Heat transfer techniques in metal hydride hydrogen storage: A review

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Abstract

<u>Metal hydrides</u> have been under focus as a favorable <u>hydrogen storage</u> medium. The heat transfer to/from the metal hydride reactor bed is one of the major controlling parameters of the storage process. Consequently, a variety of heat transfer techniques have been employed till date to improve the system performance. In this review, an effort has been made to summarize the developments so far, assess the effectiveness of various heat transfer techniques and draw some inferences from the study which can contribute to a more effective design of heat transfer systems. Upon a comprehensive study of the existing literature a classification of heat transfer techniques was attempted and their relative effectiveness assessed with respect to system scale. It was observed that improvement of only <u>thermal conductivity</u> or <u>heat transfer coefficient</u> will not be able to improve system performance. An effective design should take into account the influence of both these parameters concurrently.

Introduction