

## AMIDE-HYDRIDE SYSTEMS FOR HYDROGEN STORAGE

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### ABSTRACT

The lack of safe, reliable and efficient hydrogen storage systems remains one of the key obstacles to the hydrogen economy. Amide-hydride systems are a promising class of hydrogen storage materials particularly for vehicular applications. This is because these systems possess relatively high hydrogen storage capacities and release hydrogen under moderate conditions. However, they generally suffer from poor kinetics and their thermodynamic properties still need to be improved, in addition to clearly understanding their reaction mechanisms. A wide range of amide-hydride systems have been studied since the first investigation of the reversible hydrogen uptake of lithium nitride was reported in 2002. Research efforts are being made to enhance the hydrogen storage performances of these amide-hydride systems through various strategies such as addition of catalysts and modifying the composition, amongst others. This chapter will provide an overview of select amide-hydride systems with a focus on the advances made towards improving the hydrogen storage properties of these systems.