

PROGRESS IN MATERIALS-BASED HYDROGEN STORAGE AT HYSA INFRASTRUCTURE IN SOUTH AFRICA

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ABSTRACT

The South African Department of Science and Technology (DST) developed the National Hydrogen and Fuel Cells Technologies (HFCT) Research, Development and Innovation (RDI) Strategy, which was branded Hydrogen South Africa (HySA). HySA was established and comprises three Centres of Competence: HySA Infrastructure, HySA Catalysis, and HySA Systems. The scope of HySA Infrastructure Centre of Competence is to develop applications and solutions for small- and medium-scale hydrogen production and storage through innovative research and development [1]. Within HySA Infrastructure's portfolio are various hydrogen storage options including high pressure composite cylinders, materials-based-storage [2-4] and chemical carriers. This presentation will first provide an overview of the hydrogen storage projects being undertaken at HySA Infrastructure. It will then focus on materials-based hydrogen storage, where recent progress in the development of porous materials including metal-organic frameworks and nanostructured carbon, and their composites will be discussed.

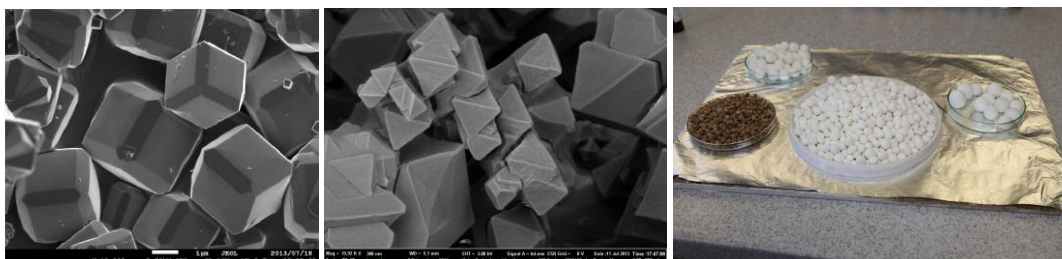


Figure 1: SEM image of nanostructured carbon (left), SEM image of metal-organic framework (middle), and photo of shaped metal-organic framework materials (right).

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