

Green synthesis of chromium-based metal-organic framework (Cr-MOF) from waste polyethylene terephthalate (PET) bottles for hydrogen storage applications

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Abstract

It is of great economic value to produce high-value PET-based MOF materials by the veritable elimination of waste PET, and provide sufficient MOF materials for hydrogen storage applications. Consequently, this work demonstrates the use of waste PET bottles as direct source of BDC acid linker during the synthesis of Cr-MOF. The PET-derived Cr-MOF materials showed even better textural and hydrogen storage properties than that from commercial BDC (Sigma–Aldrich).