

## **Ni foam-immobilized MIL-101(Cr) nanocrystals toward system integration for hydrogen storage**

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Metal–organic framework (MOF) materials are only obtained as loose powders with low packing density and thermal conductivity. To enable the developed MOF powdered materials to be utilized in a hydrogen storage system, in this study, MIL-101 nanocrystals, as an example, were prepared and immobilized on Ni foam as multi-layers. The hydrogen storage properties of individual and hybrid materials were assessed and compared. The hybrid material with 81 wt.% loading of MIL-101(Cr) nanocrystals exhibited a hydrogen adsorption capacity of 1.5 wt.% at 77 K and pressure up to 1 bar. Although the value is compromised relative to that of pure MIL-101(Cr) powder (1.9 wt.%), this approach facilitates the transition of developed MOFs powdered materials from laboratory toward system integration.