

Synthesis of Highly Dispersed Small Metal–Organic Frameworks Crystal

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Metal–organic frameworks (MOFs), consisting of organic building block and metal or metal–cluster secondary building unit (SBU), have emerged as a promising alternative to conventional porous materials due to their ultra–high surface area, structural diversity, controllable pore sizes and tailorable functionality. Distinct benefits of MOFs from other porous materials have led to tremendous potential applications such as gas and chemical storages, separations, sensor, light–harvester, drug delivery and catalysis. Typically, MOFs crystalline material have been obtained as a bulk crystal size of several hundreds micrometer to millimeter size with random morphologies. This may be not suitable for practical application such as membrane separation, thin–film device and biomedical field, which require small size as well as uniform morphology of materials. To overcome this limitation, herein, we report on formation of highly dispersed small Co–MOF–74 crystal controlled by polymer and competitive additional ligand as an additive.