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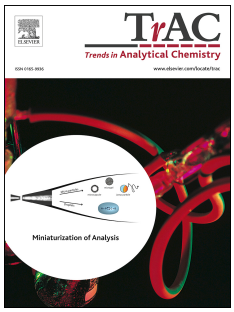

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Review: Metal-organic framework based crystalline sponge method for structure analysis

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Abstract

Crystalline sponge method represents a rather new trend in structural analysis. This method is to use networked porous metal complexes as “crystalline sponges”, which does not require the crystallization of the sample. It has large and regular cavities which can absorb the target molecules like sponges and arrange them in an orderly manner, so that their structures can be determined with X-ray diffraction. In this review, we focus on recent trends in crystalline sponge method. Following an introduction in the field, a first main section covers the birth of crystalline sponge method and the improvement of crystal synthesis method. The further section covers structural confirmation, including the guest molecular structure determination and host-guest interactions. The next main section covers the expansion of crystalline sponge method, such as the applications in synthesis, other crystalline sponge and visual observation. The final section covers the limitations and prospects of the crystalline sponge method.

Keywords: X-ray analysis; metal-organic framework; crystalline sponge method; structure determination; absolute configuration.