

A Two-fold interpenetrated 3D metal-Organic framework with rtl topology

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A new metal-organic framework of $[Zn_3(\mu_3\text{-OH})(\text{BTB})_2(\text{Pz})]\cdot\text{solvent}$ (BTB = 1,3,5-benzenetribezoate; Pz = pyrazine) has been solvothermally synthesized and structurally characterized. The title compound crystallizes in the orthorhombic space group Pnma and exhibits two-fold interpenetrated three-dimensional (3,6)-connected nets. The effective free volume of the channels without the guest molecules is estimated to be 5026.1 Å³ by PLATON software, which is almost 55.6% of the unit cell volume. The title compound shows high thermal (ca. 420 °C) and solvents (up to 150 °C) stabilities as demonstrated by TGA and variable temperature PXRD. Further applications of the title compound with gases were investigated.

Keywords: [Crystal structure](#), [Metal-organic framework](#), [Gas Storage](#)