In situ High Temperature Single Crystal Investigation of a Dehydrated Metal-organic Framework Compound and Field-induced Magnetization of One-dimensional Metal-oxygen Chains

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Fig. S1. Thermogravimetric measurements of compound 1 in nitrogen and in air.

Fig. S2. Dehydration/Hydration cycles in argon atmosphere: a) repeated dehydration by heating to 100°C and immediate hydration; b) dehydration and hydration at room temperature.

Fig. S3. Hydration after dehydration in argon atmosphere: a) at 100°C and tempering the sample for 24 hours; b) at 100°C and tempering for another 36 hours (immediately followed by another dehydration/hydration cycle); c) at 200° and tempering the sample for 15 hours; d) at 200° and tempering for another 48 hours.

Fig. S4. Hydration curves in air after tempering for 2 h at 100°C (blue), 24 h at 100°C (purple), 1 h at 150°C (red), another 18 h at 150°C (orange), and an additional 18 h at 150°C (green).

Fig. S5. Electron density maps of compound 2 at 200°C.

Fig. S6. Thermodiffractometry of compound 1: a) in air from 20-165°C; b) in a stream of nitrogen gas from 20-275°C.
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**Figure S5.** Electron density maps of compound 2 at 200°C. CCDC 270294 contains the crystallographic data for this structure. These data can be obtained free of charge from the Cambridge Crystallographic Data Centre via [www.ccdc.cam.ac.uk/data_request/cif](http://www.ccdc.cam.ac.uk/data_request/cif).

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