Supporting information for DT-ART-04-2011-010631


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**Figure S-2:** Zoom of the ESI-MS spectrum (Figure S-1) of a solution containing [CaCo₆L₁₂]²⁺ (see main text). Calculated m/z (doubly charged): 845.2.
Figure S-3: ESI-MS spectrum of a solution containing [Co₆MgL₁₂]²⁺ (see main text). Calculated m/z (doubly charged): 837.2.

Figure S-4: Zoom of the ESI-MS spectrum (Figure S-1) of a solution containing [Co₆MgL₁₂]²⁺ (see main text). Calculated m/z (doubly charged): 837.2.
Figure S-5: FTIR spectrum of solid 1 (crystals).

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Figure S-7: FTIR spectrum of solid 2 (crystals).

Figure S-8: Zoom of FTIR spectrum of solid 2 (crystals), showing the diagnostic C-O pattern.
Figure S-9: FTIR spectrum of solid 3 (crystals).

Figure S-10: Zoom of FTIR spectrum of solid 3 (crystals), showing the diagnostic C-O pattern.
Details on the X-ray refinement of structures 1 and 3

The dichloromethane molecule in 2 was found disordered in two positions with equal occupancy factors. In 3, the dichloromethane molecule was found disordered by symmetry over two positions around the symmetry centre. This molecule was refined with constrained anisotropic parameters.

Variation of the magnetic susceptibility of 3 as a function of the temperature

![Graph showing the variation of magnetic susceptibility vs. temperature for molecule 3.](Figure S-11)

**Figure S-11**: Plot of $\chi$ vs. temperature of 3. The inset shows a magnified view of $\chi$ at low temperatures.
Figure S-12. Plots of the in-phase ($\chi'$, left) and out-of-phase ($\chi''$, right) ac susceptibility signals vs temperature for complex 1 under 1000 Hz in the absence of dc field.

Figure S-13. Plots of the in-phase ($\chi'$, left) and out-of-phase ($\chi''$, right) ac susceptibility signals vs temperature for complex 3 under 1000 Hz in the absence of dc field.