Supplementary Material

Synthesis, structures and luminescence of two 2-D microporous metal-organic frameworks in the zinc (cadmium)-dicarboxylate-imidazolate system

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Table S1. Selected bond lengths (Å) and angles (°) of 1 and 2.

| Compound 1 |  |  |  |  |
|------------|--------|--------|--------|--------|
| Zn(1)-O(1) | 2.0303(18) | Zn(1)-O(3) | 2.0528(16) | Zn(1)-O(4) | 2.0532(16) |
| Zn(1)-N(2) | 2.0053(19) | Zn(1)-O(2)#1 | 2.0328(16) |  |  |
| O(1)-Zn(1)-O(3) | 87.20(8) | O(1)-Zn(1)-O(4) | 89.09(8) | O(1)-Zn(1)-N(2) | 100.58(8) |
| O(1)-Zn(1)-O(2)#1 | 157.32(9) | O(3)-Zn(1)-O(4) | 157.40(8) | O(3)-Zn(1)-N(2) | 98.61(7) |
| O(3)-Zn(1)-O(2)#1 | 86.72(8) | O(4)-Zn(1)-N(2) | 103.99(7) | O(4)-Zn(1)-O(2)#1 | 88.18(8) |
| N(2)-Zn(1)-O(2)#1 | 101.93(8) |  |  |  |  |

| Compound 2 |  |  |  |  |
|------------|--------|--------|--------|--------|
| Cd(1)-O(1) | 2.230(6) | Cd(1)-O(3) | 2.235(4) | Cd(1)-O(4) | 2.321(4) |
| Cd(1)-O(5) | 2.455(5) | Cd(1)-O(6) | 2.402(6) | Cd(1)-N(1) | 2.252(5) |
| Cd(2)-O(2) | 2.210(6) | Cd(2)-O(4) | 2.297(4) | Cd(2)-O(7) | 2.255(5) |
| Cd(2)-O(2)#1 | 2.210(6) | Cd(2)-O(4)#1 | 2.297(4) | Cd(2)-O(7)#1 | 2.255(5) |
| O(1)-Cd(1)-O(3) | 100.9(2) | O(1)-Cd(1)-O(4) | 97.84(17) | O(1)-Cd(1)-O(5) | 152.10(19) |
| O(1)-Cd(1)-O(6) | 81.9(2) | O(1)-Cd(1)-N(1) | 101.6(2) | O(3)-Cd(1)-O(4) | 101.18(16) |
| O(3)-Cd(1)-O(5) | 91.01(19) | O(3)-Cd(1)-O(6) | 174.7(2) | O(3)-Cd(1)-N(1) | 89.19(19) |
| O(4)-Cd(1)-O(5) | 54.82(16) | O(4)-Cd(1)-O(6) | 82.80(19) | O(4)-Cd(1)-N(1) | 155.85(18) |
| O(5)-Cd(1)-O(6) | 88.5(2) | O(5)-Cd(1)-N(1) | 103.77(19) | O(6)-Cd(1)-N(1) | 85.8(2) |
| O(2)-Cd(2)-O(4) | 86.78(17) | O(2)-Cd(2)-O(7) | 84.3(2) | O(2)-Cd(2)-O(2)#1 | 180.00 |
| O(2)-Cd(2)-O(4)#1 | 93.22(17) | O(2)-Cd(2)-O(7)#1 | 95.7(2) | O(4)-Cd(2)-O(7) | 90.35(17) |
| O(4)-Cd(2)-O(4)#1 | 93.22(17) | O(4)-Cd(2)-O(4)#1 | 180.00 | O(4)-Cd(2)-O(7)#1 | 89.65(17) |
| O(7)-Cd(2)-O(2)#1 | 95.7(2) | O(7)-Cd(2)-O(4)#1 | 89.65(17) | O(7)-Cd(2)-O(7)#1 | 180.00 |
| O(2)#1-Cd(2)-O(4)#1 | 86.78(17) | O(2)#1-Cd(2)-O(7)#1 | 84.3(2) | O(4)#1-Cd(2)-O(7)#1 | 90.35(17) |

Symmetry transformation used to generate equivalent atoms for 1: #1 = -x, y, 1/2-z; 2: #1 = -x, 2-y, -z.
Figure S1. IR spectra of 2-methylbenzimidazole (mbIM).
Figure S2. IR spectra of the as-synthesized complexes 1 and 2.
Figure S3. Experimental and calculated powder X-ray diffraction patterns of 1 and 2 indicate the purity of the as-synthesized complexes.
Figure S4. Thermogravimetric analysis (TGA) in 1 and 2.