Supporting Information

for

Stepwise in-situ Synthesis and Characterization of Metallophthalocyanines@Mesoporous Matrix SBA-15 Composites

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**Figure S1.** Schematic presentations of phthalocyanine (Pc) and metallophthalocyanine (MePc). (Gray sphere: C; White sphere: H; Blue sphere: N; Red sphere: Metal ions.) Phthalocyanine is a beautifully symmetrical 18\(\pi\)-electron aromatic macrocycle, and can play host to over seventy different metal ions in its central cavity to form metallophthalocyanines. Pc and its derivates always have a blue or deep-blue color as colorants and pigments. During the in-situ chemical vapor reaction in this study, the mixture changes from the white to blue or deep blue, indicating the successful synthesis of MePc@SBA composites, as shown as the digital images in the bottom line in Figure S1.
Figure S2. FTIR spectra for the as-synthesized SBA-15 (a) and amine group modified SBA-15 (b) powder, respectively. The decrease of the intensity at about 960 cm$^{-1}$ for Si-OH group and the bands appearance for NH group (arrowed in b) indicates the successful modification of the inner surface with amine group.

Figure S3. FTIR spectra for the starting materials SBA-15 powder and Pc precursor DCB, and the resultant A-MePc@SBA composite.
Figure S4. Typical FTIR transmittance spectra for V-MePc@SBA composites.

Figure S5. SAXRD patterns of the SBA-15 (a) and V-MePcs@SBA composites (b:NiPc and c:CoPc), respectively.
Figure S6. Typical TEM images of SBA-15 (A, B) and V-MePc@SBA (C, D). E and F present the EDS spectra of NiPc@SBA and CoPc@SBA.
Figure S7. Typical TEM Images for A-MePcs@SBA composites perpendicular and parallel to the electron beams, and the corresponding EDX spectra, respectively.

Figure S8. Typical FESEM images before (left) and after (right) the in-situ synthesis of MePcs in the mesoporous channels via a chemical vapor reaction.