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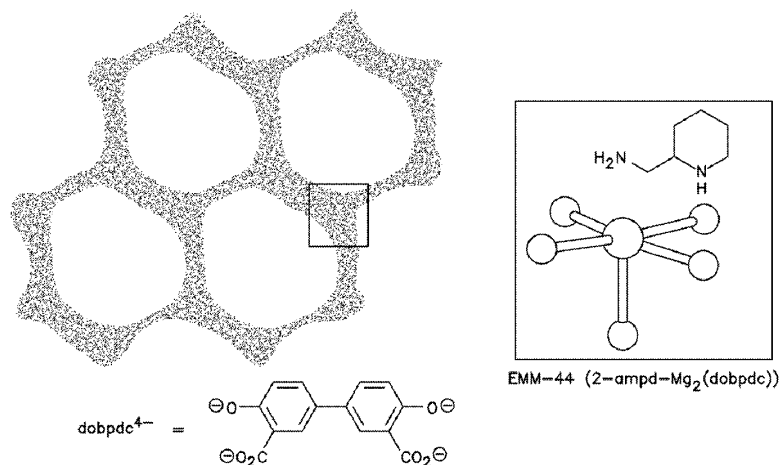


FIG. 11

(57) **Abstract:** Provided herein are adsorption materials comprising a mixed-metal mixed-organic framework comprising metal ions of two or more distinct metals and a plurality of organic linkers. Each organic linker in the plurality of organic linkers is connected to a metal ion. The adsorption material further comprises a plurality of ligands. In an aspect, each respective ligand in the plurality of ligands is an amine or other Lewis base (electron donor) appended to a metal ion in the two of more distinct elements of the mixed-metal organic framework to provide a mixed-metal mixed-organic framework system.

[Continued on next page]

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