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Graphitic carbon nitride nanoplate for elemental mercury capture**Cheng Lu**¹, **Jiang Wu**^{1*}, **Dongjing Liu**^{2*}

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Abstract: Graphitic carbon nitride ($g\text{-C}_3\text{N}_4$) as a nanocarbon material has attracted accelerated concern because of its layered structure, facile synthesis route and lower capital cost. Here, three kinds of $g\text{-C}_3\text{N}_4$ are fabricated via simply thermal polycondensation of dicyandiamide, melamine, and urea at high temperature, and they are applied for elemental mercury (Hg^0) capture in a fixed-bed reactor. We found that the $g\text{-C}_3\text{N}_4$ nanoplate attained by urea pyrolysis exhibited prominent Hg^0 capture ability with Hg^0 removal efficiency of $\sim 84\%$ which is much higher than that of the $g\text{-C}_3\text{N}_4$ derived from dicyandiamide and melamine pyrolysis, probably attributed to its bigger BET surface area and pore volume.

Keywords: carbon materials; porous materials; graphitic carbon nitride; mercury removal

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