Zeolite templated microporous carbon nitride for CO_2 capture

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Recently, various solid CO_2 adsorbents were investigated like MOFs, zeolite, Amine-porous silica composites. Among these adsorbents Amine-porous silica composite showed greatly enhanced CO_2 adsorption capacity. But the structure of silica based materials is easily destroyed in the presence of steam. So recyclability of the adsorbents is considered as a one of the biggest problem to commercialize them. And microporous carbons synthesized by using zeolite as a hard template have been studied in recent year. Microporous carbons showed very high surface area and high gas-sorption properties. So in this work we synthesize zeolite template microporous carbon nitride (ZMCN) using Melamine formaldehyde as C- & N- source for CO_2 capture. ZMCN showed high surface and large pore volume like zeolite and the regular pore size which is obtained by templating method is favorable for selective CO_2 sorption. And unlike microporous carbon, ZMCN showed enhanced CO_2 adsorption capacity due to the N in the framework.