

New Layered Aluminosilicates, JNU-2, Obtained Using 1,4-bis(N-methylpyrrolidinium)butane

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Diquat molecule as a structure directing agent has been used extensively in zeolite synthesis such as TNU-9, IM-5, SSZ-74 and etc. Many unique zeolite can be synthesized using diquat because of its flexible structure of diquat molecule with different chain length. Using 1,4-bis(N-methylpyrrolidinium)butane, the novel layered aluminosilicates, JNU-2 of Si/Al ratio, ~ 20 was obtained. The morphology of JNU-2 was confirmed to be layer from the result of SEM and TEM image. The structure of as-made JNU-2 was obtained readily from Rietvelt refinement combined with powder chargeflipping method. The novel layer in which one Q3, (-OSi)3(-OH) and three Q4, (-OSi)4 were present contained pentagonal ring that can be utilized for the formation of novel porous structure. However, the calcination of JNU-2 was resulted in the structural collapse due to the presence of disordered Si-O-Si bond in the pentagonal ring.