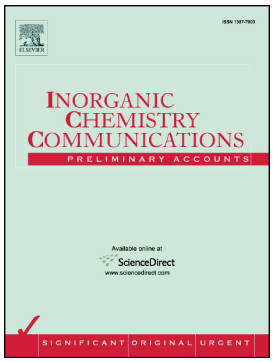

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Triclinic AlPO-34 Zeolite Synthesized with Nicotine and Its Proton Conduction Properties

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Abstract

A triclinic AlPO-34 zeolite ($(C_{10}N_2H_{16})[Al_6(PO_4)_6F_2](H_2O)$, denoted as SYSU-1) with CHA topology has been synthesized by using nicotine as the organic structure directing agent (OSDA). The calcination of SYSU-1 leads to the fomation of rhombohedral AlPO-CHA, which further transforms to the rehydrated AlPO-34 (SYSU-1R) upon exposure to air. SYSU-1 and SYSU-1R show proton-conducting properties with the conductivity values of 3.93×10^{-4} and 4.97×10^{-5} S cm^{-1} at 328K and 100 % relative humidity, respectively.

***Keywords*:** Nicotine; Organic structure directing agent; Aluminophosphate; Phase transformation; Proton conduction.