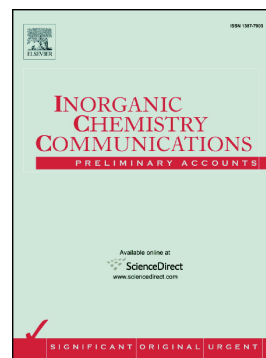


Accepted Manuscript

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PII: S1387-7003(18)30651-8
DOI: doi:[10.1016/j.inoche.2018.08.009](https://doi.org/10.1016/j.inoche.2018.08.009)
Reference: INOCHE 7075
To appear in: *Inorganic Chemistry Communications*
Received date: 13 July 2018
Revised date: 7 August 2018
Accepted date: 7 August 2018

Please cite this article as: Chenghui Zhang, Yan Yan, Zixin Huang, Huaizhong Shi, Chuanqi Zhang, Xiaohui Cao, Jiuxing Jiang , Triclinic AlPO-34 zeolite synthesized with nicotine and its proton conduction properties. Inoche (2018), doi:[10.1016/j.inoche.2018.08.009](https://doi.org/10.1016/j.inoche.2018.08.009)

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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 ((C₁₀N₂H₁₆)[Al₆(PO₄)₆F₂](H₂O), 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 formation 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.

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