A New Organically Templated Vanadium Arsenate

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Materials of open-framework and microporous structures are extensively studied because of their potential applications in catalysis, ionic conductivity, ion-exchange, and magnetic devices Here we report a compound synthesized under hydrothermal conditions as part of a study of organically templated vanadium arsenates. V_2O_5 , Na_2HAsO_4 ·7H₂O, H₂N(CH₂)₃NH₂ and H₂O in the molar ratio of 2:1:2.4:556 were heated at 180 deg C for 3 days to give black crystals.

The product was characterized by X-ray diffraction, SEM/EDX, FTIR, and TGA. The EDX spectrum indicates presence of vanadium and arsenic in a 3:1 ratio. The IR spectrum has a strong peak at 999 cm⁻¹ that can be assigned to the v(V=O) vibration, strong bands at 973, 800, 634 and 567 cm⁻¹ characteristic of v(M-O-M) (M = V or As) and v(As–O) [1], and bands in 1623-1383 cm⁻¹ region are due to the NH₂ and CH₂ bending of 1,3-dap. The broad band at 3438 cm⁻¹ can be attributed to O-H stretching.

[1] Beneŝ L., Melánová K., Zima V., Trchová M., Uhlířová E., Matějka P., *Eur. J. Inorg. Chem.*, 2000, 895-900.

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