

Crystal growth and characterization of organic single crystal 2-amino 4-methyl pyridinium oxalate: (C₇H₉N₂O₂)

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Abstract:

The 2-amino 4-methylpyridinium oxalate (2A4MPO) compound was synthesized and the crystal has been grown (shown in Figure 1) by the slow evaporation solution growth method. The lattice parameters of the grown crystal were calculated and the crystal structure was solved by single crystal X-ray diffraction measurement. It reveals that the grown crystal belongs to the monoclinic crystal system with a space group of P2₁/n. The obtained unit cell parameters are: a = 7.1853 (7) Å, b = 9.5314 (9) Å, c = 11.0896 (11) Å, α = 90°, β = 105.665 (3)°, γ = 90° and V = 731.27 (12) Å³. The various (hkl) planes of 2A4MPO single crystal have been identified by the PXRD measurement. The carbon and hydrogen environment in the grown crystal has been investigated. The various functional groups have been analyzed by the FT-IR measurement. The Thermal stability of the grown crystal was analyzed by using thermogravimetry (TG) and differential scanning calorimetry (DSC) measurements. The structural perfection of the crystal was studied by HR-XRD analysis, which indicates the perfection of the crystal is quite good. The other physio-chemical properties studies are underway.

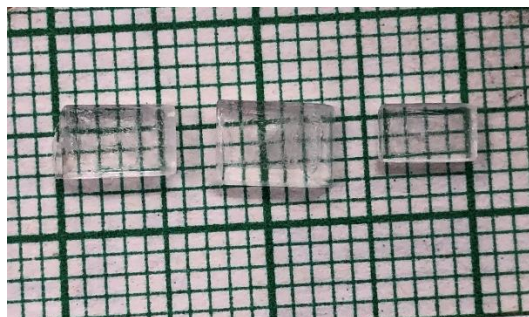


Figure 1. Photograph of as-grown 2-amino 4-methylpyridinium oxalate single crystals

Keywords: A. Single crystal; B. Solution growth; C. Crystal structure; D. X-ray diffraction