Structural, spectroscopic and thermal property studies of cobalt adipate tetrahydrate single crystals

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Abstract. Cobalt adipate tetrahydrate single crystals were grown by the single gel diffusion technique. The well-faceted, red-colored crystals were characterized by single crystal X-ray diffraction analysis, Fourier-transform infrared spectroscopy and micro-Raman spectroscopy. The single-crystal X-ray diffraction analysis revealed that the structure of the crystal is monoclinic with space group P2(1)/*n*. The Fourier-transform infrared and micro-Raman spectroscopy studies confirmed the presence of water molecules, different functional groups and metal–oxygen bonding in the crystal. Thermal stability and decomposition behavior of the crystal were analyzed by thermo-gravimetric, differential thermal analysis and differential scanning calorimetry.

Keywords: A2. Single crystal growth, A1. X-ray diffraction, A1. Characterization, B1. Cobalt adipate tetrahydrate.