

MS40-P06 | STUDY OF STRUCTURAL POLYMORPHISM IN MOLECULAR COMPOSITES: APPLICATION TO ENERGY STORAGE

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The solid-solid phase transitions in the molecular composites of pérovskite-type layer (C10Zn, C12Zn and C10Cu) are studied by differential enthalpy analysis and X rays diffraction. These studies show that these composites possess a rich and complex structural poly morphing. The parameters of the crystalline cell in the different phases put in evidence are determined. The enthalpy differences (ΔH) are of 39.4 kJ/mol for the composite C10Cu, 49.2 kJ/mol for C10Zn and 62.0 kJ/mol in the case of the C12Zn. The crystallographic and thermodynamic studies show that the values of the temperatures and the enthalpy variations of the different transition increase with the chain length. The mechanisms of the phase transitions observed can be described by ordre-desordre process as well as by changes of conformation of the organic chains.

Keywords: Phase transition, Storage of energy, DSC, X-ray diffraction, Molecular composite, perovskite. Organic-inorganic hybrid.