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Hydrothermal synthesis and characterization of CuFeO2 Delafossite Crystals[1] M. SARABIA, S. ROJAS, Pontificia Universidad Catolica de Chile, Z. LOPEZ-CABANA, Universidad de Talca, Chile, R. VILLALBA, G. GONZALEZ, Instituto Venezolano de Investigaciones Científicas, Caracas, Venezuela, A.L. CABRERA, Pontificia Universidad Catolica de Chile — In this study we synthetized CuFeO2 compounds using as precursors Cu2O and FeOOH with fused NaOH. The synthesis takes place is a Teflon vessel lasting 97 (Synthesis I) or 48 hrs (Synthesis II) at 210 °C. The compound obtained were analyzed for crystal structure and morphology with Raman Sprectroscopy, X-Ray Diffraction (XRD), X-Ray Photoelectron Spectroscopy (XPS), Scanning Electron Microscopy (SEM), Energy Dispersive Spectroscopy (EDS). Optical properties were obtained by UV-Vis Spectroscopy and Gas adsorption measured with a Quartz-Crystal Microbalance (QCM). Our results show that this type of hydrothermal synthesis is capable to recreate the Delafossite structure of this copper-iron oxide. This material chemisorbs water and carbon dioxide.

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