Carbon dioxide and water adsorption on highly epitaxial Delafossite CuFeO2 thin film\textsuperscript{1} S. ROJAS, Pontificia Universidad Catolica de Chile, T. JOSHI, P. BORISOV, Physics Department, West Virginia University, Morgantown, M. SARABIA, Pontificia Universidad Catolica de Chile, D. LEDERMAN, Physics Department, West Virginia University, Morgantown, A.L. CABRERA, Pontificia Universidad Catolica de Chile — Thermal programmed desorption (TPD) of CO\textsubscript{2} and H\textsubscript{2}O from a 200 nm thick CuFeO\textsubscript{2} Delafossite surface was performed in a standard UHV chamber, The CuFeO\textsubscript{2} thin film grown using Pulsed Laser Deposition (PLD) over an Al\textsubscript{2}O\textsubscript{3} (0001) substrate with controlled O\textsubscript{2} atmosphere resulted with highly epitaxial crystal structure. The adsorption/desorption of CO\textsubscript{2} and H\textsubscript{2}O process was also monitored with X-ray Photoelectron Spectroscopy (XPS) and Auger Electron Spectroscopy (AES). Our results revealed that carbon dioxide interacts with CuFeO\textsubscript{2} forming Fe carbonates compounds on its surface. Hydroxides were also formed on the surface due to water presence. Using TPD data, Arrhenius plots for CO\textsubscript{2} and water desorption were done and activation energy for desorption was obtained.

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