

156 Chemisorption of CO₂ on Delafossite CuFeO₂ surface

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In this work we studied changes on the surface's chemistry of a CuFeO₂ Delafossite thin film (200 nm thick) upon CO₂ adsorption.

We used an ultra-high vacuum system to perform x-ray photoelectron spectroscopy (XPS) on pristine sample and after have been exposed to CO₂ doses.

The XPS high resolution measurements for carbon 1s and oxygen 1s levels have revealed that CO₂ exposure had reduced the concentration of water on sample's surface and formed metal carbonate on its surface.

In figure 1 it is possible to see that before the sample has been exposed to CO₂ (Fig. 1 top) there is an important presence of metal oxide bonds on its surface; this is an important characteristic of all kind of delafossite structures [1]. Then, after the exposure (Fig. 1 bottom) the intensity attributed to metal oxides was reduced in comparison with metal carbonate signal, this shows that CO₂ provided was reduced on the surface forming metal carbonates.

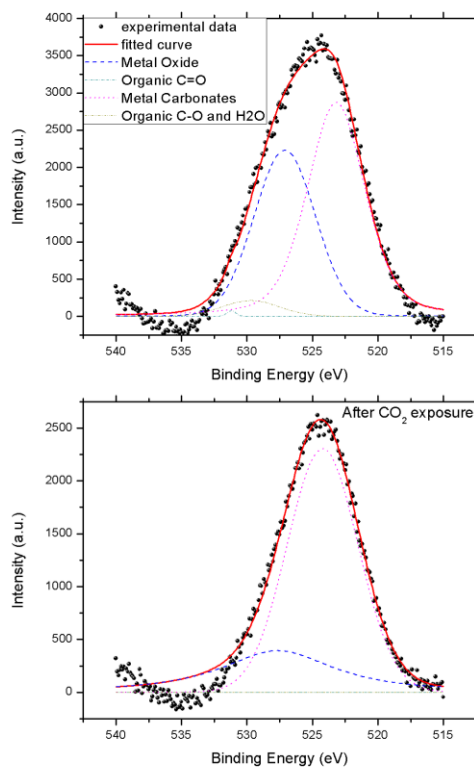


Fig. 1 The figure shows XPS high resolution of oxygen 1s level before (top) and after (bottom) the sample was exposed to CO₂.

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References

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