**Synthesizing of hydroxyapatite powder for thin films applications**

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**Abstract:** Hydroxyapatite, with chemical formula Ca10(PO4)6(OH)2, is a calcium phosphate compound regrouped with bioactive ceramics. Thanks to its best properties of biocompatibility, ostéoconduction, ostéoinduction, and of thermal stability, this mineral material was used intensively as thin film, especially on titanium alloys, in the fabrication of functional biomaterials[1]. THydroxyapatite (HAP) has better physicochemical properties thanks to its molar ratio Ca/P which is always fixed at 1,67 [2]. However, obtaining these good characteristics depends directly on the control of this molar ratio and thus on the control of synthesizing method of this material’s powder. The pulverulent substance based on hydroxyapatite can be obtained by various methods. In this work, we study the elaboration of HAP powder by the method of double decomposition "in aqueous phase", which is very much used by industries thanks to its facility and its moderate cost. hereafter, the powder was characterized by diffraction of x-rays, a thermal analysis TGA-DSC, and Fourier transform infrared spectroscopy to examine its characteristics. Results show that the chosen method of elaboration produces a powder with good properties that can be used in the synthesizing of thin films.

**References**

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