## Comparative Study between Synthesized $Zn_{2\text{-}x}Co_xSiO_4$ and Cobalt-base Pigments

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Except V-ZrSiO<sub>4</sub>, all commercial ceramic pigments are cobaltbase. Most compounds used are  $Co_2SiO_4$ ,  $Co_2SnO_4$ , and  $CoAl_2O_4$ type. Although theses pigments show an intense blue color, they present two major disadvantages: the high cost of cobalt and its toxicity. We can reduce theses problems by introducing a small quantity of cobalt into chemically and thermally stable crystalline matrix of  $Zn_2SiO_4$ .

In this work, we have synthesized bleu  $Zn_{2-x}$  Co<sub>x</sub> SiO<sub>4</sub> pigments with low cobalt content. The powder obtained was characterized by several techniques: X-rays diffraction powder, IR and UV-Visible spectroscopy, LAB color measurement, and Scanning Electron Microscopy. Comparative study was made between our synthesized pigments and the most used commercial pigments produced by different companies.

Keywords: ceramics, pigments, cobalt