

Title: **XDR and STA characterization of black pigments of the spinel structure type**

Student: Josep Falcó Falcó

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Supervisor/s: Dr. Narcís Homs

Departament of Inorganic and Organic Chemistry

Cristina Villanueva

CCT – R&D department

In this project different formulations for black ceramic pigments have been explored and studied, all of them solid solutions of **spinel type structure**. An extensive bibliographic research into various inorganic black pigments was performed and formulations with different chromophore elements have been synthesized. The pigments produced have been applied through different modern ceramic applications, including the **inkjet technique**, and have been examined through the advanced techniques of characterization X-Ray Diffraction (**XRD**) and Simultaneous Thermogravimetric Analysis (**STA**).

From the colour performance and the different aspects of the applicability of each pigment, both as a regular solid pigment and as an ink, various sections of this project have focused on exploring the issues related to their application and solutions to those have been proposed and tested. The explored applicability deals with issues commonplace in ceramic glazes such as mattified surfaces, high temperature bloating, surface porosity and colour loss upon physical milling. On the whole this project reflects on the strengths and weaknesses of the different black pigments available and their suitability for modern ceramic industry applications.

This project was hosted by the company CCT – Colores Ceramicos de Tortosa in collaboration with the University of Barcelona.