

Synthesis of $\text{LaAl}_{1-x}\text{Cr}_x\text{O}_3$ ($x=0;0,2$) pigments and application in transparent and matte glazes

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Coatings produced with ceramic pigments are predominantly inorganic, partially crystalline, insoluble materials with thermal and chemical stability. Among the oxides used as coating pigments, those with perovskite structure (ABO_3) stand out, since they can accommodate different cations in their structure, producing pigments of various colors and stable at high temperatures. In this work, LaCrO_3 and $\text{LaAl}_{0.2}\text{Cr}_{0.8}\text{O}_3$ perovskites were synthesized by gelatin method aimed to use as ceramic pigment. The precursor powders were calcined at 600 °C, 800 °C and 1000° C and characterized by X-ray diffraction (XRD), transmission electronic microscopy (TEM), UV-visible diffuse reflectance spectroscopy and colorimetry. The coloring performance of the pigments was evaluated by incorporating it into matte and transparent glazes. Precursor powders calcined at different temperatures yielded single-phase orthorhombic perovskites. All samples exhibited grayish green coloration being darker in the powders calcined at higher temperatures. The color remained practically unchanged in the glazes transparent, but change to light brown in matte glazes.