

Colour Performance of Ceramic Nanopigments*

- CoAl_2O_4 , Cyan
Au, Yellow
 $(\text{Ti}, \text{Cr}, \text{Sb})\text{O}_2$, Yellow
 CoFe_2O_4 , Black
- Black CoFe_2O_4 a spinel (inverse) structure with Co^{2+} in **both** tetrahedral and octahedral sites
- “Extensive Co-O and Fe-O charge transfers, together with d-d electron transitions of Co^{2+} and Fe^{3+} in multiple coordination, ensure the full absorption of the visible spectrum”

*[?]

- Structure stable from 800–1200°C (albeit with a growth in crystallite size from 20 to 250 nm)
- Fast growth in size in glassy coatings but prevented in glazes (persists in 20-40 nm range)
- Black colour gets darker (without regular trend) with temperature (expressed in CIELAB color space by L^* parameter)

Transition Metal Oxides; Rao & Raveau