Supplementary Material

Assessing the Effect of CeO$_2$ Nanoparticles as Corrosion Inhibitor in Hybrid Biobased Waterborne Acrylic Direct to Metal Coating Binders

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Figure S1 presents the XRD diffractograms of the neat and hybrid Bioacrylic films prepared in this study.

![Figure S1. XRD of the neat Bioacrylic film and the hybrid CeO$_2$-Bioacrylic film.](image)

The two main peaks of cubic crystalline form of CeO$_2$ can be seen in the diffractogram of the hybrid film (at $28^\circ$ (111) and at $47^\circ$ (220)). Using Scherrer equation: $D = \frac{0.94\lambda}{B\cos\theta}$ to obtain the mean diameter of the CeO$_2$ nanoparticles (D), being $\lambda$ the wavelength of the CuK radiation (0.15406 nm) and B the line broadening at half height in radians, we retrieve a mean D (diameter) of 6.8 nm from the broadening of both peaks. So, the initial CeO$_2$ nanoparticles (8 nm in average as measured in the initial dispersion in the organic solvents) are not agglomerating in this system.