

Área: FIS

Characterization and adsorption studies of erythrosine/carbon black

Helenir Nélis Ballin (IC), Sinara Adriana Strassburg (Ms), Reinaldo A. Bariccatti (PQ)^{1*}

reinaldo.bariccatti@unioeste.br

¹ Colegiado de Química, Unioeste

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Highlights

The pH PCZ was 6.9, in the SEM rough structure, and DLS obtained $\phi=2.43\pm 1.04\mu\text{m}$. The adsorption kinetics fitted a first-order model ($k=32.6\times 10^{-3}\text{ min}^{-1}$). The adsorption $Q_{\text{max}} = 0.763\pm 0.086\text{ g.g}^{-1}$.

Resumo/Abstract

Industrialization generates substantial pollution, releasing various compounds, including Volatile Organic Compounds (VOCs) and particulate matter, which degrade the quality of air, water, and soil. To mitigate this environmental impact, the development and application of adsorbent materials are essential for purposes such as the remediation of dyes, gases, herbicides, and pharmaceuticals. This study focuses on the characterization of carbon black and its application in the adsorption of the dye erythrosine. We obtained a pH PCZ of 6.9, with a strong tendency for proton adsorption. SEM images (10,000x) observed rough structures, and DLS (Dynamic Light Scattering, Figure 2) obtained $\Phi = 2.43\pm 1.04\ \mu\text{m}$. The adsorption kinetics fit a 1^a order model ($k=32.6\ 10^{-3}\ \text{min}^{-1}$, Figure 1) and Q_{max} was $0.763\pm 0.086\ \text{g.g}^{-1}$.

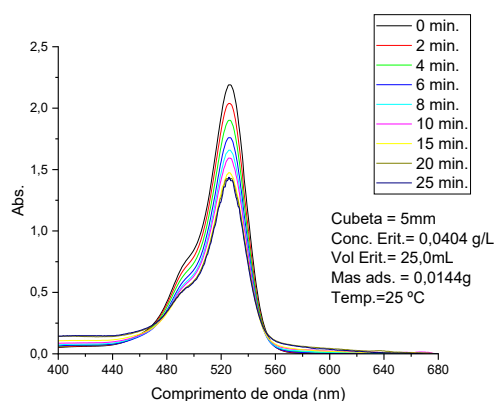


Figure 1 Graph with the absorption spectrum at different times with the adsorbent

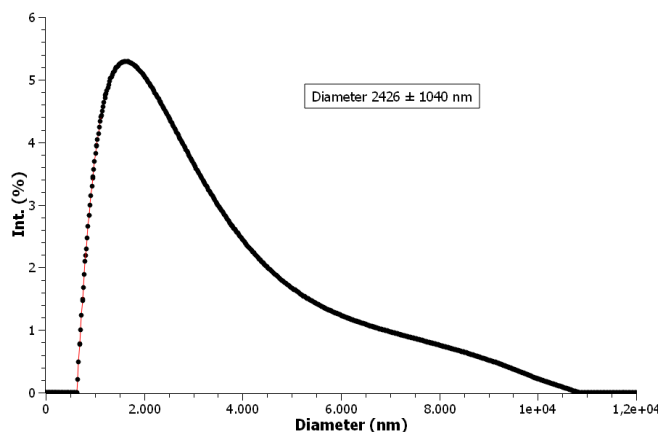


Figure 2 Light scattering graph for carbon black solution.

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