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ON THE OPTIMIZATION OF ACTIVATED CARBON-SUPPORTED IRON CATALYSTS IN CATALYTIC WET PEROXIDE OXIDATION PROCESS

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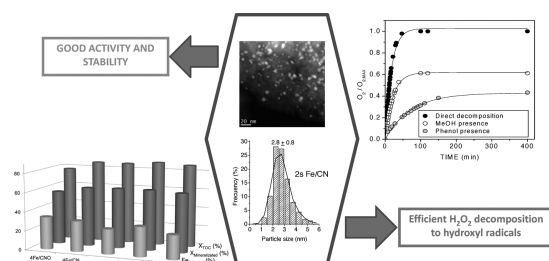
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Highlights

Best CWPO performance with iron incorporation in two impregnation steps

Optimized activity/stability with small and homogeneous iron particles

Use $\cdot\text{OH}$ scavenger as MeOH is a useful tool to determinate H_2O_2 efficient in CWPO



ABSTRACT

Different homemade iron-activated carbon catalysts (Fe/AC) have been studied in the CWPO of phenol at mild conditions (atmospheric pressure and 50°C). Both iron content and the way to introduce iron active phase in Fe/AC catalysts were analyzed to select the most stable and efficient activated carbon-supported iron catalyst. The major differences were found on their surface properties, mainly those related to iron distribution and iron particle size. Catalysts prepared by two-consecutive steps of impregnation, regardless of iron content, always presented lower leaching phenomena of iron to the reaction medium than those prepared by one-step wetness impregnation. This higher stability could be indicating an improved metal-support interaction as a consequence of the two-step methodology used to incorporate the

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