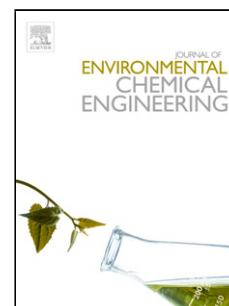


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Study and identification of contaminant phases in commercial activated carbons

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Abstract: This work aims to identify and study contaminant phases present in commercial activated carbons (AC), also to determine the quality of the AC through methylene blue absorption. A straightforward methodology was implemented to carry out a complete characterization of AC that consists of the morphology determination by SEM, an elemental chemical composition by XRF, identification of crystalline phases using XRD, and vibrational analysis through FTIR. The results showed that the primary contamination in AC is related to trace elements present in raw materials as well as residues from the activation process such as Mg, Si, P, S, Cl, K, Ca, Ti, Mn, Fe, As, Sr, and Zr. It was observed that these elements could react during all steps of AC fabrication and form crystalline compounds, mainly calcium carbonates, calcium phosphates, and silicon oxides. Moreover, gas adsorption (BET) and methylene blue (MB) removal probes show that there is no correlation between the surface area and the MB removal capability.

Research Data Related to this Submission

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There are no linked research data sets for this submission. The following reason is given:  
Data will be made available on request

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