

# **ELUTION OF PHENOL BY SUPERCRITICAL WATER FROM ACTIVATED CARBON FIXED BED**

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## **Abstract**

In a previous study, we presented and discussed experimental as well as theoretical results related to adsorption equilibria between commercial activated carbon and aqueous solution of phenol under liquid and supercritical water conditions.

We also studied the kinetic behaviour of the adsorption process for the same system under liquid solutions conditions.

This contribution deals with the desorption of phenol from exhausted activated carbon fixed bed. In particular, it is shown how, starting from equilibrium data, it is possible to predict the elution behaviour under kinetic conditions when using supercritical water as eluant. To this purpose we developed a proper model which can be confidently used to find the optimal operating conditions for the activated carbon regeneration section.

The results obtained will be shown, discussed and compared with the few experimental kinetic data available from the literature related to the regeneration of activated carbon saturated with phenol.