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Theoreticalmodelling for calculation of the energydensities of adsorption sites using inverse gaschromatography

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Abstract: The inverse gas chromatography is used to determine the energy densities of theadsorption sites of the stationary solid phase. The use of this technique is old anddates back to the 1940s. The many possibilities offered by this method are describedin several works. This work is an attempt to explore some adsorption local isothermmodels in order to determine the energy density of the adsorption sites. It involves theuse of integral equations of the first kind which are known to be numerically instable.These integral equations were solved by two different methods of solution. One isbased on the use of Taylor series expansions and the other uses the Stieltjes transform.Some interesting theoretical and numerical results are presented.

Keywords : adsorption, Integral equations, Adsorption isotherms, energy