

# Theoretical modelling for calculation of the energy densities of adsorption sites using inverse gas chromatography

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**Abstract:** The inverse gas chromatography is used to determine the energy densities of the adsorption sites of the stationary solid phase. The use of this technique is old and dates back to the 1940s. The many possibilities offered by this method are described in several works. This work is an attempt to explore some adsorption local isotherm models in order to determine the energy density of the adsorption sites. It involves the use of integral equations of the first kind which are known to be numerically unstable. These integral equations were solved by two different methods of solution. One is based 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