



## Compact Rapid Pressure Swing Adsorption Processes - Impact of Novel Adsorbent Monoliths

By Andreas Gorbach

Shaker Verlag Apr 2006, 2006. Taschenbuch. Book Condition: Neu. 210x149x14 mm. Neuware - Regarding the development of energetically efficient units for gas separation and gas purification, Pressure Swing Adsorption (PSA) processes offer a profitable approach. Particularly in small scale applications the compact design of the adsorber is crucial. To achieve the required high productivity, short cycle times must be applied and hence small adsorbent particles must be used, providing sufficiently fast adsorption kinetics. This has been characterized by the term Rapid Pressure Swing Adsorption (RPSA). However, high pressure drop and low mechanical stability of the adsorbent are the limiting factors for particle size and thus process optimization. The approach considered in this work is based upon the usage of novel monolithic adsorbent-polymer materials, featuring low pressure drop and high mechanical stability. The monoliths are manufactured by extrusion of highly filled zeolitic polymer matrices using thermoplastic materials as plasticizing aid and binder. After the forming process, the added wax is removed by thermal after-treatment, creating a secondary pore structure in the polymer matrix and hence specifying its resulting mass transport properties. The potential of this development is evaluated by comparing both adsorption equilibria and adsorption kinetics of the new-type adsorbents with...



**READ ONLINE**  
[ 7.95 MB ]

### Reviews

*Comprehensive information for publication enthusiasts. I could possibly comprehend every little thing using this composed e pdf. You can expect to like the way the article writer create this pdf.*

-- **Abby Kozey IV**

*I actually started out looking at this publication. it was actually writtern really perfectly and useful. Its been written in an extremely simple way and it is only soon after i finished reading through this pdf by which really modified me, change the way i really believe.*

-- **Breanna Kerluke**