



**Molecular Biotechnology Programme**  
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Author <b>Markus Wistrand</b>		
Title (English) <b>Modelling the effect of particle size distribution on Expanded Bed Adsorption processes</b>		
Title (Swedish)		
Abstract <p>In order to investigate the effect of particle size distribution (PSD) on Expanded Bed Adsorption (EBA) process, a model accounting for a gradient in particle size within the expanded bed as a function of process parameters, was constructed and solved. Two mechanisms for intraparticle mass transfer were considered: solid/homogeneous diffusion and pore diffusion. A parametric sensitivity analysis was also performed, based on column capacity utilisation and productivity.</p> <p>A high percentage of small particles in the PSD was found to increase column capacity utilisation, while productivity was almost unaffected. Changes in intraparticle diffusion coefficient, liquid phase viscosity, particle radius and linear velocity all had an important effect on utilisation and, to a lower degree, on productivity. The effects of changes in axial and solid dispersion coefficients were close to negligible.</p>		
Keywords Expanded bed adsorption; particle size distribution; modelling; hydrodynamics		
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