

**Development and Designing Energy-Saving Devices
for Short-Cycle Adsorption on the Basis of Mathematical
Modeling and Optimization of Heat
and Mass Transfer Processes**

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Key word and phrases: enrichment of air with oxygen; heat and mass transfer processes; optimal designing; oxygen concentrator; mathematical modeling; short-cycle adsorption process.

Abstract: The paper studies the problem of designing a portable oxygen concentrator on the basis of energy-saving devices for short-cycle adsorption, mathematical modeling and optimization of heat and mass transfer processes of adsorption. The task of optimal designing of energy-saving adsorption device of portable oxygen concentrator for medical purposes is formulated and solved.