Mathematical Methods of Integrated Design of Automated Technological Processes and Equipment

D.S. Dvoretsky, S.I. Dvoretsky

Tambov State Technical University

Key words and phrases: azo-pigment; integrated design of energy- and resource-saving chemical processes; method; stochastic optimization; unit.

Abstract. Multi-stage strategy of integrated design of energy- and resource-saving chemical processes and regime control systems under uncertainty of physical chemical, technological and economic design data has been developed. One- and two-stage stochastic optimization problems, which are involved in integrated design of automated chemical process systems, are stated and effective methods and algorithms of their solution are discussed. Certain aspects of practical implementation of the developed methods and algorithms are considered in relation to the design of flexible automated continuous azo-pigment production carried out in turbulent tube reactor units.