Thematic Section: Mathematical Simulation. **Full Paper**
Subsection: Physical Chemistry. *Registration Code of Publication:* 11-27-15-71
Publication is available for discussion in the framework of the on-line Internet conference "*Butlerov readings*".
http://butlerov.com/readings/
Contributed: February 21, 2011.

Experimental and computational investigation of multicomponent diffusion in gas mixtures

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Keywords: *gas diffusion, multicomponent mixtures, the equation of Stefan-Maxwell, azeotrope, cell Stefan.*

Abstract

Research of isothermal molecular diffusion of binary azeotropic mixtures through a layer of inert gas (nitrogen) is conducted. Known ways of calculation of multicomponent diffusion are compared. It is shown that the matrix methods of calculation have certain advantages in comparison with the analytical methods. Algorithms of calculation of elements of a matrix of multicomponent diffusion are analysed. The algorithm of calculation of dynamics of formation of a concentration profile in Stefan tube is developed at diffusion of a multicomponent mixture through a layer of inert gas.