**Joint sorption of Ca(II) and Mg(II) cations with glauconite from diluted chloride solution and media containing indifferent electrolytes**

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**Keywords:** calcium, magnesium, chloride, glauconite, sorption, indifferent electrolyte.

Sorption of Ca(II) and Mg(II) cations with 95% concentrate glauconite from diluted chloride solution containing 0,125 – 0,500 mmole-equ/l CaCl2 and MgCl2 at their separate and joint presence has been studied taking into account the demands of water clearance depth from cations of hardness for boilers of high pressure. Influence of cations concentration, their relative correlation in the solution, specific mass of sorbent, sorption duration, efficiency of one and two successive steps of clearance and a presence of indifferent electrolyte (10-3 M Na2SO4 or 2,4·10-3 M NaNO3 insertion of which induces the same change of the initial ionic strength of the working solution) is considered. It is shown that in the studied conditions the sorption clearance of working solution permits to reach the concentration of hard cations not more than 0,01 mmole-equ/l i.e. to decrease it more than by 90 times. The relative sorption ability of Ca(II) and Mg(II) as a function of studied factors is estimated.

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**Application of wave technology for preparation of sorption-active composite materials**

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**Keywords:** polymer composite materials, wave technology, viscosity, film-formation, non-woven materials.

The obtaining of sorption-active composite materials on non-woven base was considered in this work. The technology of impregnation of compositions containing aqueous solutions of gel-forming polymers with dispersed of silica or ceolyte was used. The wave technology of filled polymer compositions allowed to receive stable impregnating compositions with high dispersed fillers. By this mode the high speed of impregnations regular filler particles were reached and it promoted the forming materials with improved filtering and sorption properties. It is important that materials obtained can be used during more continuous period of time (1,5- 2 times longer).

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**Keywords**: automated system, the monitor environmental-ring, air pollution, environment.

Analysis of the currently existing work in the field of environmental monitoring of atmospheric pollution by harmful substances has shown that they are accompanied by not only material losses, but also massive loss of life and deteriorating health of adjacent territories, so in terms of air pollution is important to the speed and accuracy of the information received . Industrial development requires increasing attention to the control of air pollution by harmful substances. The solution of such problems is not possible without creating an automated system for monitoring atmospheric pollution industrialized areas. The article describes an automated system for monitoring the state of the environment, which is designed for continuous monitoring of pollutants associated with accidental emissions, measurements of meteorological parameters, generate and transmit data to the center of the collection, processing and storage of data sets.

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**Comparison efficiency of extractive agents at the separation of mixture acetone – methanol**

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**Keywords**: acetone, methanol, separating agent, diagram of isolines, excess Gibbs energy, relative volatility, isoselectivity, extractive rectification.

A comparison of separating agents which proposed in the literature for the extractive distillation of azeotropic system acetone – methanol is conducted. The choice of separating agents is based on different approaches and rules of thumb. The diagram of isolines for the excess Gibbs energy, the relative volatility of components to be separated and the selectivity of separating agents for ternary systems acetone - methanol - selective agent in isobaric conditions are used for analysic. Tthermodynamic criterion linking excess Gibbs energy and the relative volatility of the components were performed for all selective separating agents.

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**Energy-saving schemes for extractive distillation of benzene-cyclohexane-toluene mixture with N-methylpyrrolidone as entrainer. Part 2. Schemes with partially thermally coupled columns**

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**Keywords:** benzene, extractive distillation, schemes with partially thermally coupled columns, energy saving.

One way to reduce energy consumption to the extractive distillation process is to use schema including complex column with partially coupled heat and material flows. The aim of this work is to evaluate the energy efficiency of such schemes in comparison with conventional. Study uses as object separation of benzene, cyclohexane, toluene mixture with N-methylpyrrolidone as the entrainer.  Seven new schemes with the partially coupled heat and material flows were constructed on the basis of the transformation of the three conventional extractive distillation schemes. Study used for schemes optimization criteria of the total energy consumption in the column’s boilers. All 10 schemes were compared by this criterion. The schema having maximum energy consumption decreasing (28.7%) consists of a complex column which includes main column, side extractive distillation column and a side stripper.

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