

## SOFTWARE FOR THE CALCULATION OF EQUIPMENT FOR RECTIFICATION

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**Introduction.** During the preparation of the engineers-technologists, one of the control tasks is the is a course project, which should be calculations of a rectification installation for a particular mixture of substances. In the process of performing this work can be made a serious error due to the use of data of different handbooks and numerous conversions of physical quantities. In addition, the teachers take a lot of time checking the course of projects in connection with which there is a need for automation of calculation of parameters of equipment for rectification.

**Aim.** Development of software for automation of calculations of the main technological parameters of the rectification of multicomponent mixtures, which contain not only background data but also formulas.

**Materials and methods.** A software algorithm is developed on the basis Microsoft Excel. This is due to many reasons:

- These spreadsheets are included in the software package Microsoft Excel and installed on almost all computers;
- They are available to most users of the programs;
- They are quite simple to work;
- The spreadsheet is a tool that is easy and simple to connect for cooperative job, which expands the range of their application.

**Results and discussion.** Software tool that is under development, contains calculation formulas baseline of equipment for rectification, and reference data needed for the calculations. When we create a database, we contribute reference data for each possible component (density, viscosity, boiling point, surface tension, vapor pressure, specific heat of vaporization, etc.), in order to take into account the variations of binary mixtures that are to be divided.

To run the program, it is necessary to enter the data, which are divided into two blocks: the design assignment and thermophysical characteristics of the components. After calculation, prints the original data and calculation results.

**Conclusions.** Calculation of parameters of equipment for rectification relevant to technologists, engineers and chemists. This software implements an algorithm for design calculation of the rectifying column in the course of discipline “Processes and devices of biotechnological productions”.

## ABOUT CRITICAL SPEED OF VERTICAL SCREW DOSING BULK MATERIALS

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**Introduction.** Automation of production processes in the chemical, food, pharmaceutical and other industries often depends on automation of process of dosing bulk materials. The solution to this problem has great importance from the point of view of increasing productivity and improving the quality of the finished product. Classification of metering systems to constructive signs is the most extensive. It can be conditionally divided into three directions: dosing with a screw, dosing by vibration and of chamber dosing. Dosing with a screw (volumetric and gravitational) provides high accuracy and is well established when working with hard-flowing materials. The dose is measured directly from the hopper. This eliminates the operation of filling the measuring cups and stabilization of dose in technological cycles. Vibration dosing has advantages, namely the constructive simplicity and ease of adjusting the amplitude of the oscillations. But it is characterized by low productivity and the transfer of dynamic loads to the structural elements of the structure. Chamber dosing is characterized by the complexity of the design. And also additional time spent on filling the measuring cups and stabilizing the dose. Practice of operation of all these systems shows