

TO THE PROBLEM OF CREATING DOMESTIC SPRAY DRYING INSTALLATIONS

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One of the priorities of development in Ukraine is the development of the agrarian sector and closely related processing enterprises of the food, microbiological, pharmaceutical and a certain part of the chemical industry. However, at many processing plants the existing technological equipment is physically outdated and does not meet modern requirements for energy efficiency and environmental safety.

In the Institute of engineering thermophysics of NAS of Ukraine design documentation has been developed for several modifications of spray dryers. A diameter of the cylindrical part of their working chamber is 5 meters (like most dryers in the dairy industry), but compared to the existing ones it differs in some design solutions of a number of critical units, such as the system for supplying heat carrier (heated air) and gas distribution, the cooling system of the chamber ceiling, the powder discharge system, cooling system in the lower cone part of the chamber, pneumatic cooling system and others.

The Institute of engineering thermophysics of NAS of Ukraine has also the design development of low-capacity spray dryers (less than 100 kg of evaporated moisture per hour) of the following sizes – chamber diameters are 3.2; 2.5; 1.5 meters. They are intended for obtaining powder form of various products of high biological activity, enzymatic, bacterial and phyto-preparations of therapeutic and prophylactic action.

The complex of research works carried out at the Institute in the direction of improving heat technology indicators allows us to offer new technologies for obtaining powder form of multi-purpose products. The developed technologies are based on significant fundamental studies of the process pretreatment of initial products using discrete-pulse energy input devices, which allows to solve a number of tasks to stabilize the rheological characteristics of dried liquid products and to provide the necessary structural and mechanical properties of the resulting powder product. For new technologies regulatory documentation has been developed and approved for production in Ukraine. A number of new heat technologies was tested in industrial conditions.

A significant technical groundwork of diverse developments allows us to solve problems in the shortest possible time for the creation of domestic dryers and the integrated processing of raw materials.