

Ишматова Барно Исмаиловна

канд. техн. наук

Каршинский инженерно-экономический институт

г. Карши, Республика Узбекистан

CHARACTERIZATION OF TECHNOLOGICAL PROCESSES AS OBJECTS OF CONTROL AND MANAGEMENT

Аннотация: данная статья рассматривает вопросы автоматизации в пищевой промышленности, химико-технологические процессы и трудности мониторинга показателей качества промежуточной и готовой продукции.

Ключевые слова: оборудования, характеристики, контроль, определения.

Abstract: this article considers automation in the food industry. Chemical-technological processes and difficulties in monitoring the quality indicators of intermediate and finished products.

Keywords: equipment, characteristics, control, definitions.

The equipment used in the food industry, the nature of the impact on the processed products is divided into two main groups – machines and equipment. Machinery and equipment used for production work. Their feature-the presence of the moving of working body. For devices include equipment in which the impact on the product changes its physical and chemical properties.

Those branches of the food industry, in production lines which are mainly used devices, can be attributed to hardware manufacturing. Production can be considered as the basic unit of food businesses and, as a rule, is a complete process for producing one or more food businesses or intermediate products that can be used by other industries, such as Malt and yeast production.

Characteristic features of the food industry are multi-stage, the complexity of chemical-engineering processes and the difficulty of monitoring of quality indicators of intermediate and finished products.

Under the control and management of the object it refers to a set of complex and simple static and dynamic systems and components whose characteristics are formed, controlled and configured for specific algorithms.

Process control object (TOW) is defined as a set of technological equipment and sold it on the instructions and regulations of the process. The complexity of the control and management of the process is determined by the complexity of the object. Description builds its mathematical model, which can be described by a system of equations determining the dependence of the output parameters of the object of the external and internal influences in its functioning. On the basis of the model formulated monitoring and management tasks, synthesized control system to determine the degree of automation and efficiency.

A characteristic of the control process is determined by the following criteria:

1. The time required to perform the process as a whole and its components.
2. The accuracy of the various systems.
3. The volume, cost, power consumption, etc.
4. The probability of failure-free operation of the control system.

Background design of automatic control systems

High rates of development of food industries require improved monitoring techniques and process control on the basis of introduction of modern automation tools to optimize workflows.

Management objects are the processes that relate to fixed (stationary) objects and can be conditionally divided into the following types:

A. Continuous production processes, characterized by a continuous flow of raw material and unloading of finished product for which the inherent long periods of operation of the object in a static mode. Such control objects to the greatest extent meet the requirements for automation technology;

B. The continuous- cyclic processes, which at different stages of the process and apparatus used in various continuous and cyclical (periodic) modes;

C. The cyclical processes, characterized by intermittent operation of the object and a certain sequence of operations. An example of this can serve as a control object process beets processing plant sugar factory or branch brewery.

Technological process in terms of the development of management systems is an elementary production unit of the company and may be a portion of the process line, office or shop.

The most important prerequisite is the automation of manufacturing excellence and flue and hardware design technology.

K process technology with its automation to meet the following requirements: continuity of production line equipment and suitable location in accordance with the direction of the material and energy flows within the automated production sites. Desirable continuity of the process and the compactness of the equipment used. The equipment must have high reliability characteristics in operation and low delay and inertia.

The economic rationale for developing and implementing Automatic Control Systems The introduction of automatic control systems improves production efficiency, improve product quality control, improve the level of sanitary processing equipment, improve the productivity of the equipment, and reduce the cost of raw materials and energy. In the development of the automatic control system must take into account the fact that with an increase in its complexity dramatically increase development costs, deployment and operation. Therefore, it is necessary to develop economic analysis management to decide on the advisability of implementation in terms of improving economic efficiency.

Preliminary economic analysis associated with the commissioning of new management systems, can be configured using a map of critical relationships, which is a graph of the costs of the enterprise in the implementation of automation systems of production. The schedule is constructed in the usual Cartesian coordinates. The x-axis corresponds to the volume of production in terms of production for any given period of time enterprise. On the y-axis shows the costs and revenue of the enterprise in the monetary units. Given the fact that the card is the critical ratio is for some limited

period of time, it can not be assumed that the amount of working capital is constant and does not change as a function of increasing or increasing capacity utilization. The costs of development and implementation of automation systems linear function.

The point of the critical ratio (TCR) on the graph is characterized by the absence of profits and losses of the enterprise; in other words, it corresponds to the payback for automation costs, which allows you to visualize and to judge the appropriateness of the level of development and commissioning of automatic control systems.

References

1. Stephanie E.P. Fundamentals of building automation systems. Textbook for high schools. – M.: Energoizdat, 1994. – 352 s.
2. Annunciation M.M., Voronina N.O., Kazakov A.V., Petrov I.K., Prokofiev A.E., Rakovskaya E.M. Automation and automation of food production. Textbook for high schools. – M.: Agropromizdat, 1994. – 239 s.
3. Petrov I.K. Technological measurements and devices in the food industry. Textbook for high schools. – M.: Agropromizdat, 1995. – 344 s.
4. Korytin A.M. Automating standard processes and systems. Textbook for high schools. – M.: Energoizdat, 1998. – 432 s.
5. Dudnikov E.G. Automatic control. Textbook for high schools. – M.: Chemistry, 1997. – 368 s.