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Characteristics of medical fibers and textiles

Abstract

This article is based on the theoretical justification for the development of energy saving projects and the main operating parameters for the implementation of the process of preparing high density cotton seeds for storage. Fiber with low humidity and larger evaporation surface dries faster than weed. Therefore, in the design of existing cotton drying drums moisture from the fibers and seeds is not lost evenly. During the drying process, the fibers dry and the seeds do not dry properly. As a result, during the subsequent processing of cotton raw materials excessively dried fibers are broken, not dried seeds are broken into pieces. This is reflected in the final production of cotton factories. Thus, even the loss of moisture from the components of cotton raw materials is an important condition for the operation of modern dryers.

Keywords: Physical Colloidal • Biomechanical • Drum dryers • Fine impurities • Cleaning • Physical mechanical • Operational • Hot air • Shovel • Temperature • Humidity • Weight • Cotton • Fiber

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Introduction

One of the issues of the program of economic development of the Republic of Uzbekistan is to increase the productivity of high quality fiber and its implementation on the world market. The production of high quality raw cotton fiber depends on the fact that the production process is organized on the basis of technical requirements. In particular, in the process of drying cotton in processing plants, it is important to reduce its moisture content and storage.

Significance of the System

Cotton raw material a material consisting of three different components that are not identical in structure. These components include fibers, cotton seeds and a core. Khlopkova fiber and polishes represent the capillary holes. The fiber is located on the entire surface of the seeds and consists of 97% cellulose. Depending on the type and grade of fiber length is an average of 25-50 mm, a fiber diameter of 15-25 mkm, and the thickness of the seed 0,25-0,4 mm.

According to its chemical composition, the pulp contains 40%-45% cellulose, 20%-25% lignin, 28%-30% lecton, 3% protein and 2%-3% powder (ash). The kernel consists mainly of fats and proteins. It contains carbohydrates, crystals and colloidal sugars, as well as pectin containing substances in the colloidal dispersed state. Seeds are naturally colloidal materials and consist of materials with capillary holes. Cotton raw materials are colloidal capillary whole materials as drying plants.

Due to the different morphological structure of the components of cotton raw materials, the moisture content in them is also different. In the wet state of raw cotton, each component is moistened according to its physical properties. It is known that during storage and processing of cotton humidity should not exceed 10%-12%, at humidity 8%-9%. Drying cotton seeds is one of the most energy intensive processes that requires in depth scientific analysis. Existing cotton drying plants operate at a temperature of 150˚C-280˚C. energy Consumption of 8400 kJ is used to absorb 1 kg of moisture from cotton.

Analyses show that the improvement of fiber quality depends on the efficiency of the drying plant. Existing drying shops do not use the available opportunities, which affect the quality of fibers and seeds. At the same time, the drying mode of cotton raw materials should be taken as a basis: all other indicators, such as breaking load, colour and fiber length, mechanical damage to the fiber and seeds, and others.

Literature Survey

Reducing the humidity level is carried out by means of high temperatures in the production and differs from the complexity of its control. On the basis of experimental studies on the implementation of drying of raw cotton by combined hot air and short waves, the temperature control was theoretically developed and proposed for use in the production of the technological map.

According to the studies of A. I. Kulagin and U. A. Arifova, the temperature of technical seeds should not exceed 750S, since the temperature increase leads to a change in the protein content in the seeds.. Many scientists are engaged in drying processes and designing cotton dryers.

Conclusion and Future Work

Changes in the thermal conductivity and heat capacity of cotton and seeds depend on humidity, bulk density and temperature, which allows for optimal drying mode of the proposed dryer, taking into account differences in the thermal properties of cotton components, providing acceleration and uniformity of the process.

To optimize the air flow, cotton was dried along the cross section of the drum, I will be provided. Consequently, with the creation of a new automated cotton swab drum transmission design, it is possible to ensure

that the cotton seeds from the top of the drum are not stacked together and that the heat exchange from the hot air is effectively used. And it is important to put it into production.