

**ANALYSIS OF THE IMPACT OF THE TYPE AND AMOUNT OF IMPURITIES IN
RAW COTTON ON THE EFFICIENCY OF CLEANING**

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Abstract

This article analyzes the influence of the type and quantity of impurities in raw cotton on the efficiency of the cleaning process. The quality of cotton fiber largely depends on the effectiveness of impurity removal during primary processing. Raw cotton contains various organic and mineral impurities, including leaves, stems, cotton burs, soil particles, dust, and other foreign materials. Their physical properties, amount, and adhesion to cotton fibers significantly affect the performance of cleaning equipment and the quality of the obtained fiber. The study examines the relationship between impurity characteristics and cleaning efficiency, considering factors such as impurity size, density, moisture content, and distribution in raw cotton. The effect of different levels of contamination on the operation of cleaning machines and technological parameters is evaluated. The analysis shows that an increase in impurity content leads to a decrease in cleaning efficiency, higher energy consumption, and possible damage to fiber quality due to excessive mechanical impact.

Keywords: Raw cotton, cotton cleaning, impurities, cleaning efficiency, cotton fiber quality, organic impurities, mineral impurities, cotton processing technology, cleaning equipment, fiber preservation.

Introduction

During the process of transporting and storing cotton, impurities penetrate the fiber even more. As a result, the cotton becomes dirty, which negatively affects the fiber separation process and the quality of the fiber. The level of contamination of cotton in hand-picked and machine-picked cotton is very different. Hand-picked cotton has been proven to be contaminated with more minor impurities.

Impurities settle on the outside of the first Cotton, then in the process of transportation and placement, impurities crumble and penetrate deeper into the fiber, making cleaning processes difficult. Therefore, it is more effective to clean cotton before transporting and storing it.

The general degree of contamination of cotton raw materials is characterized in two different cases: quantitative impurities-with quantity and class impurities-with quality.

Dirtiness is also determined by the amount of dirt in the cotton, both inside the fiber and outside the fiber. Dirt is mixed with the fiber in different ways depending on the type of fiber. Since the impurities that penetrate the inside of the fiber are mainly small impurities, the process of enveloping action is used in existing cleaning devices.

The extraction of impurities from cotton depends not only on its type and variety, but also on the variety and humidity of the cotton. The amount of impurities leads to an increase in cleaning efficiency. If there are many impurities in the cotton, the amount of cotton that is separated from it will also increase. However, it is difficult to separate the impurities that have penetrated deep into the cotton from the dyeing process. It is possible to completely clean cotton from impurities, but it has been found that defects in fiber and pollen are exceeded, due to the high number of adverbial effects on the working parts. For this reason, in the process of cotton cleaning at enterprises, it is advisable to use a method other than the enveloping method, which does not produce defects. From the analyzes, 50% of the dirty impurities that remain in the fiber after the Jin are made up of defects.

The presence of impurities in the composition of cotton in different ways and in different ways leads to the fact that the Times and methods of their separation from cotton differ. Zarbiy ta'sirli tozalagichlar uzoq vaqtdan beri paxta tozalashda foyda keltirmoqda. But, by now, the taste and demand of the buyer are changing, accordingly, the demand for the offer is also changing. The quality and cost of products produced by textile companies largely depend on the quality of the fiber. But, even in modern textile enterprises, up to 15% fiber is lost in the process of cleaning and combing due to impurities and defects in the fiber.

Lost fiber, on the other hand, makes up short (bulk) fibers that are not suitable for spinning, in addition to a lot of impurities and defects in the structure. These fibers are made up of natural short fibers and broken, broken fibers of various lengths. The cost of production and the quality of the product depend on the low level of impurities and defects in the fiber composition. Defects and defects in fibers occur during the initial processing of the fibers.

The low efficiency of cotton ginning machines in enterprises and their extreme dynamism, damage cotton seeds and fiber. This leads to the fact that in the process of Jinning, the fibers are separated along with the seed pods, and the fibers are disconnected from the middle, and not from the bottom.

Machines used in cotton cleaning enterprises during the period of cotton cleaning are divided into cleaning machines from 2 groups, large impurities and small impurities. Large impurities are mainly caused by the fact that the fiber is on the surface, they are easily separable, that is, they consist of passive impurities.

To do this, it is necessary to carry out research on the methods and structures of cleaning devices and technological processes that are present in the enterprises of preliminary processing of cotton, which do not harm fiber and seeds as much as possible.

In order to improve the efficiency of cotton cleaning machines from small impurities, multi-drum construction is used. For cotton with high levels of impurities, it is necessary to pass it through a series of machines. This causes an increase in the number of impurities in cotton fiber and cottonseed. The amount of dirt has a significant impact on cleaning efficiency. Therefore, in multi-drum cleaners, the amount of dirt removed in each subsequent drum decreases. However, it will take time for the impurities to separate. In order to reduce the time required for the separation of impurities, it is necessary to change the effect of the main working parts on the cotton. The construction of each drum is the same, and the effect is the same. In order to reduce and speed up the time of separation of impurities, it is necessary to change the effect of

each drum, in accordance with the separation of impurities. Alternatively, no matter what factors affect efficiency in the cotton cleaning process, since vibrating cleaners are far from the enveloping effect, the above factors do not affect the appearance of defects. The use of vibrating cleaners in cotton cleaning processes does not adversely affect the decrease in cotton quality to other processes.

The demand for cotton raw materials and cotton fiber moisture performance comes from the fact that cotton is one of the important factors that affect the initial processing processes, from its preparation and storage to the process of fiber folding. The Jinning of cotton raw materials at a technological humidity of 7.5-8.5 percent ensures that the natural properties of its components are preserved, the productivity of demons increases, and cotton fiber is released in an acceptable amount.

Currently, cotton raw materials harvested from the fields are given directly to storage and the technological process for initial operation. This is especially avoided by the fact that cotton raw materials, picked up on the machine, have a high level of dirt in their composition, as well as its high moisture content. In this case, it is not advisable to introduce cotton raw materials into the technological process. Because, in the process of cleaning low-grade cotton raw materials, there will be no possibility of adequate cleaning, and impurities will remain in the cotton, interfering with the fiber after the Jinning process.

As a result, the fiber passes into the lower classes. In the process of processing low-grade seed cotton raw materials, it will be necessary to clean it from impurities (crushed, leaf and flower residue, branches and X, k). Impurities are divided into two views (type).

Impurities larger than 10 mm in size are large and those that are small in it decompose into small impurities. The quality and quantity of cottonseed oil are determined by its physical and chemical properties. A quantitative indicator characterizes the quality indicators, the dimensions of impurities, their combination with fibers in cotton blanks, if the total amount of impurities in the raw material (in units and percentages) is determined.

The impurities are on the surface of the cotton swabs, on the inner Sox, and are attached to their raw material particles to an equal extent. Accordingly, small impurities are deeply entrenched in the composition of the raw materials, the separation of them from the fragments requires much more complex methods, mainly the use of mechanical shock forces.

When the theoretical laying of the separation of dirty mixtures located on the surface of cotton raw materials under the influence of dynamic force in the process of cleaning, large impurities are mainly located on the surface of pieces of raw materials, since their combination with fiber is quite loose, separating them from fiber does not pose a big problem. When choosing the technological parameters of cleaners, the parts in the main process and the methods of their calculation were considered. In it, a blow from the process of cleaning cotton raw materials from waste and the dragging of cotton lumps from the desolated surface were taken as a basis. In general as noted above, the waste particles are attached to the fiber at the surface, and the question of finding the Universal-looking analytical expression of the coupling force has been raised. The above theoretical studies are aimed at revealing the mechanism of separation of impurities from cotton swabs. One of the conclusions, the theory is intended to solve such issues

as the separation of a particle with the speed at which the shock is characteristic, by studying its movement and bringing it to the surface of the particle.

We will get acquainted with the essence of the content of the efficiency of the attachment of waste to fiber, their cleaning in the technological process, before familiarizing ourselves with the construction of waste cotton from waste.

In addition, we will consider the main control developments and calculation processes when choosing the technological parameters of cleaners. At the moment, the process of cleaning cotton raw materials from waste was taken as a basis by dragging pieces of cotton from the shock and irritated surface. The main motility of the cleaner consists in reducing the strength of the coupling between the waste particle and the fiber under the influence of dynamic force (shock, vibration, shaking and X,k) on it, moving the particle relative in the raw material and expelling it from the mass of the raw material.

Since there is very little research done in this direction, the determinative method is mainly used. This method is based on the study of the movement of the external force effect on the mass of their fiber, taking into account the analytical appearance of the coupling forces between the particles of dirt and cotton fibers.

Impurities will be scattered on the surface and inner Sox of the hom, depending on their size, where small particles are located deeper into the inner Sox of the raw materials (cotton lumps), which is much more complicated to separate from the raw materials, which will be necessary to give them a high level of impact and shaking effects.

During the movement of the fiber mass along the mesh surface, the contact force between the particle in its composition and the mesh surface is characteristic, under the influence of which the particles move spatially, as a result of which part of them goes beyond the open areas of the surface. According to this method, the reduction of the micror of a particle on a lattice surface is proportional to its microris and the speed of movement along the surface. Based on this method, a theoretical study of the process of separating particles of dirt from the composition of a lone piece of cotton is carried out. Before modeling the particle separation process, it will be necessary to determine the speed of a cotton swab on a mesh surface from a theoretical bias.

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