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Research Article

STUDY AND ANALYSIS OF TECHNOLOGICAL PROCESSES OF COTTON DRYING IN A CLUSTER SYSTEM

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ABSTRACT

In the article, experiments were carried out on raw cotton varieties of the An 37 and Namangan 77 breeding to analyze the operating mode and technological processes of tower drying equipment in the technological process of drying raw cotton at the cotton ginning enterprise Bahodyr Logon LLC. LLC Textile. From the obtained results, the amount of moisture removal from the cotton content of the equipment, the time of splitting of cotton, the amount of consumption for evaporation of 1 kg of moisture from the equipment, and the results of the analysis are presented.

KEYWORDS

Drying, wet, peas, dirt, selection, working chamber.

INTRODUCTION

Several disadvantages of the drum dryers currently used for drying cotton raw materials, especially the large consumption of fuel and electric energy and the violation of the natural quality indicators of cotton raw materials, i.e. the reason for cotton wilting [1], have been determined by experiments. Therefore, in order to study and analyze the technical and technology

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of foreign cotton ginning applied to the cotton ginning enterprise of "Bahodir Log'on Textile" LLC in accordance with the reconstruction and modernization program of the cotton ginning industry, a number of experiments were conducted in the cotton ginning enterprise of "Bahodir Log'on Textile" LLC:

The main part

The experiments were carried out according to a pre-planned plan. To do this, we analyzed the samples taken from the machines directly installed in the production technological process in laboratory conditions. The experiment was conducted on the An 37 and Namangan 77 breeding varieties. In the experiment, the movement of cotton raw material was monitored directly on the shelves installed in the working chamber of MGZ 10 tower drying equipment through special observation windows, and its movement was carried out by photo observations [2-4] (Fig. 1).

During the movement of cotton raw materials, the process of cleaning small impurities in cotton was observed in pile cleaners installed on the upper part of the equipment. Raw cotton entering and leaving the equipment was sampled for moisture and dirtiness and determined in laboratory conditions [5-7].

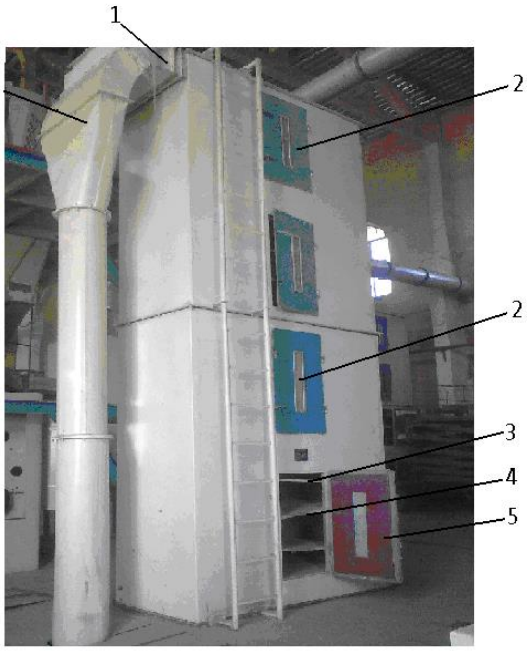

Figure 1: Overview of a tower dryer

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Here: 1- wet cotton drop pipe; 2- observation windows; 3; 4- cotton moving polka dots; 5 – observation doors.

The obtained results were filled in special tables (Table 1). As a result of the movement of cotton raw material on the racks installed on the tower drying equipment with the help of airflow, it was determined that the time of cotton in the working chamber is 11-13 seconds, depending on the speed of the air in the working chamber [8-11].

Table 1.

No	Air velocity in the working chamber of the tower dryer, m/sec: τ =?	Time of cotton in tower drying, sec: τ =?	The initial moisture content of cotton, %: Wp.b =?	The moisture content of cotton after tower dryer, %: Wp.q =?	Initial dirtiness of cotton, %: Zp.b.i =?	Impurity after tower dryer, %: Zp.q.i =?
1	24	8	11,00	10,26	6,46	5,3
2	22	7	10,86	10,46	6,76	5,76
3	25	9	11,20	10,36	6,59	5,47
4	26	8	11,5	10,40	6,76	5,55
5	21	7	10,9	10,51	6,67	5,58
6	24	8	11,09	10,39	6,64	5,53

From these obtained results, it can be seen that the moisture separation of the tower dryer is on average 0.8%, and the efficiency of cleaning the passive small impurities in the cotton raw material as a result of the 2 pile drums installed in the tower equipment is 14.7%. showed that it would.

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Figure 1: Sampling process for determining fine impurities in raw cotton in the laboratory.
Here: 1- storage bin of the obtained sample; 2- a sample was taken before and after tower drying equipment.

Figure 2: The process of determining fine impurities in cotton raw materials in the laboratory.

Here: 1- LKM laboratory equipment; 2- a sample taken to determine small impurities in cotton.

In the tower drying equipment, the air movement without cotton is 26 m/sec on average, and the time of cotton in the working chamber is 8 seconds on average. This makes it possible to extract only the free moisture content of the fibre without completely separating the moisture content of the cotton. In order to dry low-grade cotton raw materials, technological processes require the installation of at least 3 or 4 tower drying equipment in a row. And this1 kg causes an increase in the amount of fuel used to evaporate moisture. as a result of determining the total heat consumption in the tower drying equipment, it was found that the F.I.K of the equipment is 17.84%. Oas can be seen from the results, it was found that the F.I.K of the equipment is very low. The speed of the air in the working chamber was determined using cup anemometers and a special stopwatch.

After the complete removal of cotton in the working chamber to determine the time of extra raw material being in the working chamber10 kg from50 kg was determined by measuring the amount of cotton at the time of exit by feeding the cotton to the working chamber.

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