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**SELECTION OF RESEARCH DIRECTIONS TO IMPROVE THE TECHNOLOGICAL
PROCESS OF DRYING IN DRUM DRYERS****Karimbayev Dasurbek Rximberganovich**
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Abstract: This article presents an analysis of the drying process in 2SB-10 drum dryers, the results of previous work on the creation of a drum dryer with a radial supply of drying agent, which is one of the possible ways to increase the drying intensity.

Keywords: drying, drying agent, moisture sampling, intensity, duration, radial feed, speed, humidity, aerodynamic mode.

It is known that hot air drying is characterized by three parameters: air moisture content, air velocity, and temperature. These parameters influence the duration of the process and the quality of the dried material. Poetomu nado vybirat takoy mode sushki, kogda pri naimenshey ee dlitelnosti s naimenshim rashodom tepla dostigayutsya nailuchshie tehnologicheskie svoystva materiala.

V barabannyx sushilkax sushka hlopka-syrtsa proizvoditsya pri peremennom regime, t. e. vlagosoderjanie sushilnogo agenta povyshaetsya, a temperatura snijaetsya za schet isparyaemoy iz hlopka-syrtsa vlagi.

В шумящей convective sushilke drumabannogo tipa 2SB-10 the speed and quantity of the heat carrier is uvelichit nelzya, tak kak s ix uvelicheniem narushaetsya normalnaya rabota sushilki i umenshaetsya vremya prebyvaniya vysushivaemogo materiala v sushilnoy kamera.

The transfer of moisture and heat is the main process of drying the seed. Chem bystree postupaet vlaga v zonu ispareniya, tem menshe vremeni trebuetsya na sushku. Chem smaller concentration of moisture and surface material, tem blagopriyatnee usloviya dlya eyo intensivnogo peremeshcheniya k poverkhnosti iz vnutrennix sloyov. The concentration of moisture on the surface depends on the partial pressure of the air in the surrounding environment. Chem menshe partialnoe davlenie, tem bystree isparyaetsya vlaga s poverkhnosti, umenshaetsya eyo concentration, povyshaetsya gradient vlajnosti i uvelichivaetsya postuplenie eyo iz semyan. Takim obrazom, dlya intensivifikatsii peremeshcheniya vlagi iz semyan k poverkhnosti neobhodimo uvelichivat pritok svejego teplonositelya, tak kak partialnoe davlenie para v sushilnom agente v etom sluchae prinimaet minimalnoe znachenie.

V period postoyannoy skorosti sushki s intensivnym ispolzovaniem sushilnogo agent vlagosoderjanie vozdukha za 2 min uvelichivaetsya ot 4.8 do 34.1 g/kg dry air. Dalneyshee izmenenie vlagosoderjaniya protekaet medlenno, tak kak v period padayushchey skorosti intensivnost dushki szko snijaetsya iz-za povysheniya partialnogo davleniya para v vozdukhe. Po istechenii 1 min partial davlenie vodianogo para v vozdukhe povyshaetsya ot 67.9 do 320 N/m². Takim obrazom, po mere protekaniya protsesa sushki vlagopogloshchayushchaya ability agenta umenshaetsya iz-za snijeniya temperature i povysheniya partialnogo davleniya para v air

The drum machine type 2SB-10 is developed in the 60s and has a long history and is morally good. Its production was discontinued in the late 80s of the last century, as a result of which production ceased in the USSR.

Analogous to the construction of the machine in the USA is not used since the 60s of the last century. In recent years, technology has been successfully used in the U.S.A., which includes a pre-locking mechanism, and then rotates it twice in order to clean the cotton-surface of small and large pieces of cotton-wool, which simultaneously increases drying and cleaning. The machine, a rotary drum, is more effective than the previous one. This technology is used in the processing of cotton-wool in a continuous technological process, and for the cleaning and drying of cotton-wool with a moisture content of more than 15% and a high metal content and energy consumption.

The dryer 2SB-10 with low-temperature heat carrier does not provide necessary moisture [5]. The high temperature of the heat carrier, at which it is necessary to dry the product, destroys the natural properties of the fiber and destroys the cellulose. In the automatic mode, it is not necessary to find the optimal parameters of the dry product. В процессе исследования созданы модели зависимости подачи теплоносителя в драбанную сушилку, которая обеспечивает интенсификацию технологического процесса и охраняет природные свойства хлопчатобумажной ткани в условиях применения низкотемпературного теплоносителя. In the result, an adequate linear model of the process is obtained, and the first stage of the polynomial is shown:

$$Y = 14,3 - 1,28 x_1 - 2,20 x_2 - 1,6 x_3$$

where U is parameter optimization (conditional moisture content of the fabric surface);
 x_1 and x_2 – respectively temperature and speed of heat carrier;
 x_3 – dry weather.

It can be seen from the equation that the maximum effect of the parameter optimization is the speed of the heat carrier x_2 , the larger the coefficient of that factor, the stronger the effect of the parameter optimization. Opposite signs and coefficients indicate, that in order to obtain optimum all factors should be increased.

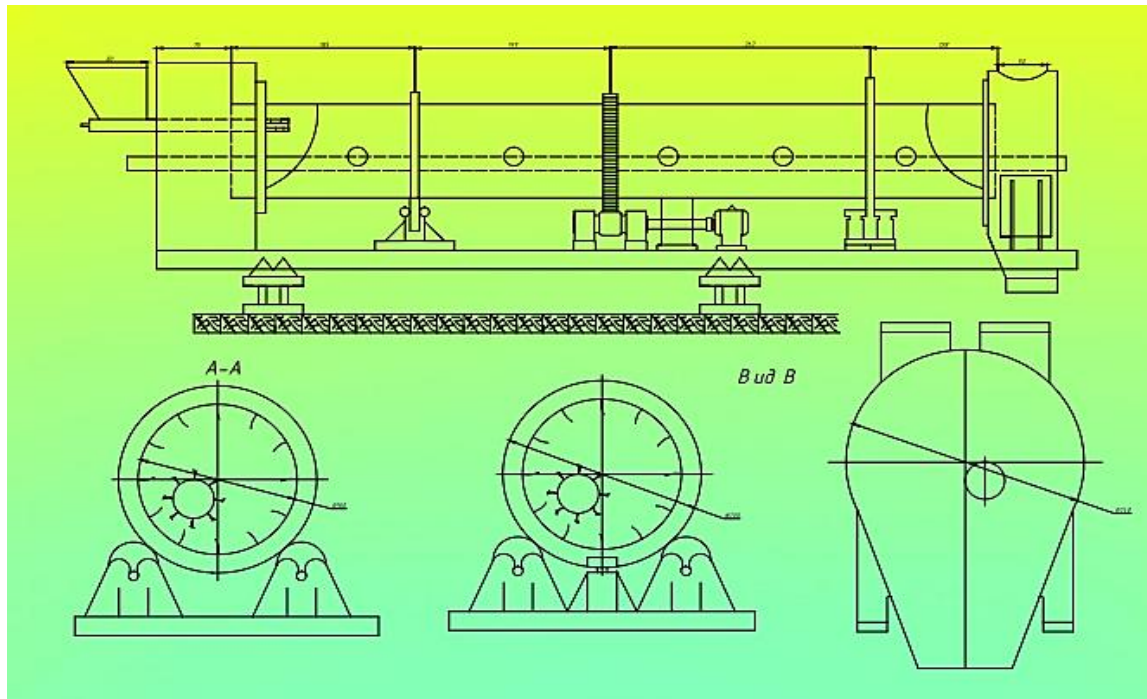
Research showed that the increase in the temperature of the heat carrier above 160 °C leads to the first part of the cell, and then the destruction of the cellulose. Therefore, for the most optimal mode of drying cotton-wool it is necessary to increase the speed of heat carrier and time of drying. The temperature of the heat carrier is set to the level of the constant level of the surface layer.

It is shown that there are different variants of the drum-type dryer with radial feed of heat carriers. The technological process of dry cotton-wool is carried out in a different way. Wet cotton-wool is pushed through the drum through the inclined screw conveyor. The drum has a diameter of 2.8 m and a length of 14 m. On both ends of the drum there are chambers, through one of which the heat carrier is introduced into the drum and heat carrier, and through the other - the heat carrier is removed and the gas is removed. The heat carrier is introduced from both sides of the perforated tube diameter 500 mm with a movable perforator inside. The perforator is used for changing the size of the zone and the amount of heat carrier and other parameters and depending on the temperature and humidity of the cloth-surface. In order to clean the drum it is necessary to rotate it, to move it up and down, and then to clean it with a stream of heat carrier, to remove it from the perforator with a speed of 15 m/s and a temperature of 100-

160 OS (v zavisimosti ot vlajnosti klopka-syrtsa). Odnovremenno strui teplonositelya intensivno omyvayut massu klopka-syrtsa v zavale.

In the flow method, the speed of the flow of gas and the drum is different, the temperature fields are not dynamic due to the hydraulic resistance of the current material. Pri radialnom je metode ispolzuet economic nozzle obdud s shimshimi skorostyami strui.

Ustanovleno, chto deystvie radialnyx struy teplonositelya, vytekayushchikh iz perforatsiy truby, turbuliziruet padayushchii hlopok-syrets. A strong vibration of the air valve occurs, and it is razryxlyayutsya and razrushaetsya teploisolyatsionnyy pogranychnyy sloy parov vokrug semeni and fiber. In the result, the intensification of the process of drying the skin of the skin at the temperature of the skin, so that it is sozdaetsya vozmojnost bystrogo proniknovenia tepla k glavnomou vlagonositelyu semeni.



1-screw auger, 2-body drum, 3-bandage, 4-support roller, 5-viewing hatch, 6-toothed shutter, 7-propulsion screen, 8-drive with reducer, 9-support roller, 10-perforated pipe, 11-unloading camera, 12-loading device

Figure 1. Schematic of a drying drum with a radial feed of heat carriers

Predpolagalos, chto drying drum with radial feed heat carrier, new aerodynamic use of low temperature heat carrier (up to 160 OS instead of 250 OS) allows drying of cotton-syrets with a single pass through the dryer, with a double pass through the dryer 2SB-10. Uvelichenie proizvoditelnosti pri ponijennyx temperaturax teplonositelya, especially pri sushke silno uvlajennogo klopka-syrtsa, sposobstvuet sokhraneniyu ego posleuborochnyx prirodnyx svoystv. Etim dostigaetsya bolshoy ekonomicheskij effect v privychnoy obrabotke klopka-syrtsa.

However, in the proposed dryer, the main factor, the aerodynamic mode, affects the durability of the cotton dryer and the drum dryer. In addition, the temperature of the drying agent and its speed, which is chosen equal to 15 m/s, are not based on research.

Vse-taki idea, predlozhennaya v etoy rabote, yavlyaetsya tsennym materialom, ispolzovanie kotorogo vozmojno pri usovershenstvovanii sushilnogo drumana, prednaznachennogo dlya hlopkoochistitelnykh zavodov xlopkovykh clusterskikh promyshlennykh predpriyatiy. Iskhodya iz opisannogo napravleniiem dalneyshih issledovaniy vybrana usovershenstvovanie tekhnologicheskogo protsessa sushki v barabannykh sushilkax s primeneniem radialnoy podachi sushilnogo agent, obosnovanie tekhnologicheskikh regimov raboty razrabotannoy konstruktsii drum sushilki.

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