Jamoliddin Mirzaboev
Namangan Engineering Technological Institute
Basic doctoral student of the Department of Technology of Textile Products,
Uzbekistan.
mirzaboyevj@mail.ru

Qadam Jumaniyazov
JSC "Pakhtasanoat" Scientific Center
Doctor of Technical Sciences, Professor, First Deputy Director General for
Scientific Affairs and Innovations, Uzbekistan.

Baxritdin Mirzabaev
Namangan Engineering Technological Institute
Candidate of Technical Sciences, Associate Professor,
Department of "Technology of textile products", Uzbekistan.

Muhammadjon Sadikov
Namangan Engineering Technological Institute
Assistant, Department of "Technology of textile products", Uzbekistan.

MEASURES FOR THE FORMATION AND USE OF FIBROUS WASTE

Abstract: The article describes the amount of waste generated in the treatment plants produced by different companies, the possibility of using the fibre in it. According to the results of experiments conducted under production conditions, conclusions are drawn on the extent to which the amount of waste has reached the lowest value relative to the total mass.

Key words: aggregate, loosening, cleaning, carding, waste, crawling, combing, peeling, down.
Language: English
Citation: Mirzaboev, J., Jumaniyazov, Q., Mirzabaev, B., & Sadikov, M. (2020). Measures for the formation and use of fibrous waste. ISJ Theoretical & Applied Science, 12 (92), 177-179.
Soi: http://s-o-i.org/1.1/TAS-12-92-34   Doi: crossref https://dx.doi.org/10.15863/TAS.2020.12.92.34
Scopus ASCC: 1105.

Introduction

All research and development work on the development of the textile industry is aimed at improving the quality of finished products. The decrees and instructions of the President adopted in this regard are a vivid example of this. In particular, a program of measures was adopted for the further development of the textile and clothing industry in the country for 2017-2019. Further structural reforms in the economy, modernization, diversification and rapid development of the textile and clothing industry, deep processing of cotton fibre and silk raw materials, the development of competitive finished export-oriented products in demand in foreign markets by attracting foreign investment A corresponding decision was made to expand volumes and types of production. To ensure its implementation, the responsible persons are assigned the appropriate duties [1].

MATERIALS AND METHODS

The textile industry is one of the most important sectors of the national economy. Over the years of independence, the textile industry has developed in Uzbekistan, new production enterprises have been created. The existing enterprises have been re-equipped with new technological equipment. Products manufactured in the textile industry must have certain quality indicators. Quality indicators must meet

Clarivate
Analytics indexed

certain requirements. Compliance, in turn, requires compliance with a standard or other regulatory document. The consumption of raw materials in the manufacture of textiles is the main factor that determines the cost of the case, and its share is about 85-90%. Therefore, it is important and relevant to find all the possibilities for the full and effective use of raw materials in the industry, their scientific justification and correct use [2].

Most of the raw material supplied for yarn production in cotton mills is separated into fibre waste. In particular, the amount of waste in the spinning system averages about 20% of the mixture, 12-18% in the snow spinning system and up to 32% in the recycling system [3]. The technological processes of spinning, refining and spinning fibres in the spinning system are very diverse, it is important to choose the right equipment, preserve the properties of the fibre in the technological process and ensure the desired properties of the yarn. Spinning factories Truetzschler (Germany), Rieter (Switzerland), Marzoli (Italy) and Howa (Japan) are used in spinning factories of developed countries of the textile industry and the Republic of Uzbekistan.

It is known that a large amount of research is being carried out to improve and modernize grinding and cleaning machines. A prime example of this is the fact that the performance of grinding and cleaning machines from the world's leading companies is recommended, especially the performance of a sweeping machine from 200 to 270 kg/h. The demand for the quality of finished products, yarn and semi-finished products, labour productivity and machines is constantly growing [4].

The aim of the study is to develop recommendations for equipping spinning and cleaning machines of the world's leading companies in newly built and refurbished spinning mills. To achieve this goal, research studies and

recommendations of firms were studied. Among the waste of the textile industry, a large share of waste from the cotton industry, in particular from spinning factories. Many types of waste suitable for spinning are used to make nonwovens and some are used in spinning mills. This is due to the lack of special machinery and equipment and the lack of technology for the full implementation of spinning from waste [5]. Efficient use of fibres and their waste plays an important role in increasing the economic potential of the enterprise. Similar questions were explored in this study. Leading scientists and researchers have carried out scientific and theoretical research, practical experiments at leading enterprises. Based on the generalization of the results of scientific and applied research, several research institutes (TsNIKSBI, IvNITI, Barnaul NIITP, Len NIITP) have developed classifications and recommendations on the source, composition and use of cotton waste [6]. For the experiment, NAM TEX, MEGA TEXTIL, operating in the Namangan region, and ANTEX, operating in the Andijan region, were selected. These factories are equipped with machine tools from various leading companies (Swiss Rieter, German Truetzschler and Italian Marzoli).

Determining the quality of fibre waste from spinning enterprises is a complex process, and the AFIS PRO-2 equipment from Uster is used in enterprises to detect garbage, small impurities and other waste [7]. At production facilities that are not equipped with such equipment, the waste content is determined using a fibre analyzer-Shirley Analyser MK-2.

RESULTS

The resulting fibre waste samples were taken from the Shirley Analyser MK-2 at NAM TEKS and separated into fibres and impurities. The results are summarized in Table 1 below.

Table 1. Fibre separation from fibre waste samples.

Enterprise	waste group	fibrous mass	fibre	peculiar sticks	dust and invisible waste
MEGA TEXTILE	CT3	100	71,8	25,7	2,5
	CT7	100	65,5	33,5	1
ANTEX	CT3	100	27	69,5	3,5
	CT7	100	76	23	1
NAM TEX	CT3	100	53,34	44	2,66
	CT7	100	62	36,9	1,1

The analysis of the results shows that 71.8% of the fibre is used in the use of Rieter machines of Mega Textile, 27% of the fibre in the use of Truetzschler machines of ANTEX. When using Marzoli machines at Nam Tex, 53.3% of fibre was found. Experiments have also shown that 65.5%, 76% and 62% of the fibre, respectively, is extracted from the comb. According to a study conducted by NAM TEKS, 53.3% of the waste is fibre, of which 26.8% is spinning fibre. It has been found that yarn can be spun from these fibres.

At present, the company uses up to 15% of the sorting composition for spinning and pneumo-mechanical spinning of waste from cleaning and scraping machines (oreshik, tarandi). It was found that the spinning of textile yarns with an average linear density of 29-34 can be used efficiently without reducing the quality of the yarn. From the practical research and the results obtained, it became clear that in a simple combing system, when spinning with a linear density of 29 - textile yarn, it is advisable not to exceed 10 - 12 per cent of the amount of combing and twisting in the mixture. This is due to the fact that the quality of the spinning yarn deteriorated with the increase of the total amount of combing yarn and yarn in the mixture by 10-12%.

CONCLUSION

In conclusion, it should be noted that when spinning yarns with a linear density of 29 - tex and higher, it is recommended to add to the composition of the mixture from 10 to 12% of the fibre obtained from fibrous waste. As a result of scientific research conducted at MEGA TEXTILE, it was found that 71.8% of the mass of waste is fibre, of which 27.4% is spinning fibre. At ANTEX, the share of waste in the mass is 27% fibre, which has almost no fibre suitable for spinning. From the above conclusions, it was found that the cleaning and scraping machines manufactured by Truetzschler are more efficient than the machines recommended by other companies.

References:

1. (2016, December 21). *Presidential Decree PQ - 2687. On the program of measures for further development of the textile and clothing industry in 2017-2019*. Tashkent.
2. Mirzaboev, J. (2017). *Influence of technological processes on the output of fibre, yarn and waste in spinning mills.* Master's dissertation. Namangan.
3. Azizov, I. R. (2009). *Secondary raw material. text of the report*. Namangan.
4. Pirmatov, S., Matismoilov, L., G'ofurov, Q.G'., & Maxkamova, SH.R. (2018). *Spinning technology*. Textbook. Tashkent.
5. Karimov, R., Azizov, I., & Khaydarov, X. (1994). *Exploring the possibilities of using fibrous waste.* Theses of the scientific-practical conference of Namangan Institute of Engineering Economics. Namangan.
6. (1983). *CNIHBI. Rekomendacii po pererabotke hlopkovogo volokna nizkih sortov i othodov prjadil`nogo proizvodstva v hlopchatobumazhnoj promyshlennosti pri ispol`zovanii dejstvushhego oborudovanija*. Moscow.
7. (n.d.). Think Quality - Think USTER®, Uster Technologies. Uster. Retrieved December 14, 2020, from https://www.uster.com/en/
8. Cingadi, S., Srikanth, K., Arun, E. V. R., & Sivaprakasam, S. (2015). Statistical optimization of cassava fibrous waste hydrolysis by response surface methodology and use of hydrolysate based media for the production of optically pure D-lactic acid. *Biochemical Engineering Journal*, 102, 82-90.
9. Ahmadjanovich, K. S., Lolashbayevich, M. S., & Tursunbayevich, Y. A. (2020). Study Of Fiber Movement Outside The Crater Of Pnevmomechanical Spinning Machine. *Solid State Technology*, 63(6), 3460-3466.
10. Ahmadjanovich, K. S., Lolashbayevich, M. S., & Tursunbayevich, Y. A. (2020). Study Of Fiber Movement Outside The Crater Of Pnevmomechanical Spinning Machine. *Solid State Technology*, 63(6), 3460-3466.