

Development of Socks Using Recycled Fabrics

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Abstract: In this project the fabric wastes are collected from the cutting department of various garment industries. Then the collected fabric wastes are selected and grinded into microfibers using rag tearing machine. The recycled microfibers are converting as an open end yarns. Then the OE yarns are converted as socks. The socks then finished with herbal like (henna, turmeric, and calamus). The fabrics will be subjected to both qualitative and quantitative test methods. This project helps to develop and create the awareness on the sustainable practice in the apparel industry. And to improve the Environment friendly practice to the garment industries. This project will provide an Ecological Option for consumers.

Keywords: Recycling fabrics, Developed socks, Herbal finish.

1. Introduction

Open end spinning or Open-end spinning is technology for creating without using a spindle it is also known as break spinning or rotor spinning. In this process the fiber sliver is separated into single fibre and in which the separated fibre material is brought by an air stream a collecting surface from which is drawn off while being twisted. Consider all wastes as a potential source of income. Where ever possible, give each waste quantity, a financial value using the raw material and disposal costs of the relevant fabric or yarn. If you do not have space to store sorted wastes, sell the mixed waste for a lower price rather than have to pay disposal costs. Lindale et al (2010), reported the environmental concerns. A very large numbers of companies are currently developing manufacturing process using alternative materials for their products and seeking new markets.

2. Objectives

- 1) To collect the cutting fabric wastes.
- 2) To grind the selected fabric wastes into microfibers.
- 3) To convert the microfibers into OE (open end) yarn.
- 4) To manufacture the socks for using socks knitting machine.
- 5) To testing the fabric bursting strength and water absorbency's test.
- 6) To herbal finishing on the socks.

3. Objectives

WASTE COLLECTION



GRINDING



CARDING



DRAWING



OPEN END YARN SPINNING



WINDING



SOCK KNITTING



TESTING



FINISHING

4. Materials and Methods



Fig. 1. Sourcing of raw material



Fig. 2. Grinding



Fig. 3. Bale making



Fig. 4. Carding



Fig. 5. Drawing



Fig. 6. OE-spinning



Fig. 7. Socks knitting



Fig. 8. Socks

5. Result and Discussion

A. Bursting Strength

Bursting strength can be tested by bursting tester in which fabric is clamped from both directing and then the pull is applied. Strength of the fabric is an important that decides and influences all other performance properties of the fabrics. Consideration of the strength of the fabric for essential while selecting the appropriate fabric for the intended garment. The physical and mechanical properties of fabric are very important in many ways.

Among these properties, the busting strength is extremely important. Bursting strength is the force that must be exerted perpendicularly to the fabric surface to break off fabric.

Table 1

Result summary/Conclusion

Test	Result
Bursting Strength	66.6pis

B. Water Absorbency

Water absorbency is a quality of great importance in cotton materials. It is desirable in underclothing^ wash- cloths, diapers, towels, napkins^ gauze, and bandage materials, but it can be troublesome during processing. If it varies from place to place in the same roll of cloth, printing will not be uniform and the shades in dyeing will differ. Cotton is one of the best known absorbent materials, yet the manner in which absorption takes place and its measurement has been largely a matter of speculation.

Table 2

Result summary/Conclusion

Test	Result
Water Absorption	60+ Seconds

C. Finishing

Table 3

Natural fiber extraction

Name	Percentage
Henna	10%
Turmeric	10%
Calamus	10%

- The above given sample is extracted by 10% of water.

6. Guidelines

Controlling cloth waste is one of the most important things to protect the environment so creating new products using waste is a solution. Awareness of industrial waste among the people should be resolved by the government. A large amount of textile waste is disposed of in landfills each year. That not only poses economic and environmental problems to the society but also represents a severe waste of resources. Market research and efforts are needed to recycled textile waste into new products. Textile recycling also teaches everyone to reuse reduce and recycle these products Instead of throwing them away. My creation has made me a better prospect. So this would be a first step to this to the next level. I hope this is a short guide for me or someone else to take it to the next level.

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