Research Paper | Asian Journal of Home Science | December, 2011 | Volume 6 Issue 2 :211-213

Effect of sizing agents on handle properties of bleached cotton material

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ABSTRACT

Sizing agents are applied on cloth in order to build up the apparent weight, impart thickness to improve luster and also to prevent the fabric from soiling quickly. Unless proper care is exercised in the selection of sizing ingredients and subsequent preparation of size paste, the performance of sizing process will not be to the desired level. Results of the study showed that, the trend of increase in the fabric weight % was not similar among the sizing agents and within the sizing concentrations. Among the natural sizing agents, higher weight gain was observed among the samples sized with sago at four per cent concentration and among all starched fabric samples, samples starched with sago were thicker.

KEY WORDS : Sizing agents, Weight, Thickness, Size concentration

How to cite this paper: Bhavani, K. (2011). Effect of sizing agents on handle properties of bleached cotton material. *Asian J. Home Sci.,* **6** (2) : 211-213.

Article chronicle: Received: *29.04.2011*; **Revised:** *04.09.2011*; **Accepted:** *12.11.2011*

Sizing is defined as the process of application or coating of size film onto the warp yarn. The amount of size applied will however depends on the factors like surface characteristics of warp yarn, the expected cover in fabric, types of weft insertion etc. Unless proper care is exercised in the selection of sizing ingredients and subsequent preparation of size paste, the performance of sizing process will not be to the desired level. It is very well understood that sizing improves the weave ability of warp yarns through increase in the tensile strength and thus prepares the warp to withstand the various stresses and forces acting on the yarn (Hayavadana, 2003).

Starching of cottons is an age old aristocratic and well known process for giving a fabric stiff and smooth finish, elegant look and good drape. Stiffening agents are applied on cloth in order to build up the apparent weight, impart thickness to improve luster and also to prevent the fabric from soiling quickly. The present study was conducted to study the effect of sizing agents on fabric weight and thickness properties of bleached cotton material.

RESEARCH METHODS

Bleached white cotton material was selected for the study. Sizing agents arrowroot powder, sago, commercial starch revive were selected for the study. Fabric samples were cut into 40 x 40 cms and were starched using arrowroot powder, sago, sago combined with arrowroot (50: 50), and commercial starch revive (Dantayagi,). The fabric was treated with 1, 2, 3, 4 and 5 per cent concentrations using hot and cold processes.

Preparation of fabric samples for testing:

After starching, the fabric samples were cut the warp and the weft way to the test specimen of the required size with the help of template from different portions of the sample under the test. Prior to testing, the specimens were conditioned to moisture equilibrium and tested in standard atmospheric conditions of 65 ± 2 per cent relative humidity and 27 ± 2° temperature in conditioning cabinet. Then the preconditioned samples were tested for fabric weight and thickness properties.

Statistical analysis:

Percentages and ANOVA tests were used for statistically analyzing the data.

RESEARCH FINDINGS AND DISCUSSION

The values of gain in fabric weight have been expressed in terms of percentage in Table 1. It was observed that after starching there was increase in the weight of all the samples tested. In cold process of starching maximum weight gain was seen with 5 per cent revive followed by 5 per cent sago and minimum values were observed for 1 per cent sago + arrowroot (50:50) starch followed by 1 per cent sago.

However, it was observed that as the concentration of starch was increased, the per cent gain in weight of the samples also increased. It was evident from the Table 1 that, the fabric weight suddenly increased when the