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Research Paper

Comparitive study on the effect of starches on crease recovery and stiffness property of bleached cotton material

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ABSTRACT : 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. An attempt has been made to study the effect of starches on the crease recovery and stiffness property of bleached cotton material using cold and hot method of starching. The results of the study showed that, fabric became stiffer with increased starch concentration and hence there was reduction in crease recovery angle. The stiffness values were higher in warp direction when compared with weft direction for all starched fabric samples. There was a significant difference in fabric stiffness with increasing starch concentration and also with different starches in both warp and weft way.

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Creasing is the phenomenon of development of folds or deformations not removable or recoverable completely. The recovery or resistance towards creasing largely depends on the resilience and elastic property of the material of the fabric itself. It also depends upon the formation of second valancy forces that determine propensity of creasing and recovery. The degrees of orientation and polymerization, synthetic materials as well as the structure of woven fabric affect the creasability of textile material (Tarafder and Ali, 1996). All the textiles as clothing and even starched fabrics must be flexible and capable of being creased and folded to conform to the figure and be comfortable to the wearer.

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. An attempt has been made to study the effect of starches on the crease recovery and stiffness property of bleached cotton material using cold and hot method of starching.

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 cm 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 specimen were conditioned to moisture equilibrium and tested in standard atmospheric conditions of 65 ± 2 per cent relative humidity and 27 ± 2^{0}C temperature in conditioning cabinet. Then the preconditioned samples were tested for crease recovery and bending length.

Statistical analysis:

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