Improvement of the Performance Properties of the Mixed Wool fabrics using yarns with different twist factor

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Abstract

The field of wool fiber mixing has become an important and a necessary in all areas of fiber textile use, whether clothing, furniture, blankets, or carpets. The types of synthetic fibers have increased steadily and their fields have expanded. These fibers have different properties, whether physical or chemical. The research was to be an area in the field of improving the properties of these types of blended fabrics. This research aims to improve some performance properties of woollen worsted fabrics, mixed with polyester fibers and woven from count yarn 60/2 metric. The count was produced using woolly fibers with a 22.5 micron and a length of 85 mm and polyester fibers with 3.3 denier, length 88 mm. Using four values of the different twist factor (75, 85, 95, 105) using four different mixing ratios of wool and polyester (30% wool - 70% polyester), (45% wool - 55 polyester), (60% wool - 40% polyester), (75% wool - 25 polyester) The reason for the researcher's selection of these count and mixtures is that it is one of the most common count and blends used in wool factories. The researcher then weaved the samples of the fabrics using these mixtures with the textile texture plain 1/1 and then processed them and carried out the laboratory tests on them to measure the effect of the relationship between the different twist factors and the mixing ratios used. It is the best parameter to determine the best parameter to be tested for each mixing ratio on the sidelines. The properties that the researcher attempted to improve were properties (tensile strength , elongation, shrinkage , loss of weight by friction, and pilling)

The problem: There are no fixed criteria indicating the effect of the relationship between the difference between the twist factor of wool and the different mixing ratios in order to improve the performance properties of mixed woolen fabrics and reduce their economic cost. Objective: The establishment of consistent criteria to show the effect of the relationship between the difference between the twist factor of wool and the different mixing ratios in order to improve the performance properties of mixed woolen fabrics and reduce their economic cost. Methodology: Research depends on experimental analytical approach. laboratory tests: The practical experiments that have been carried out to produce yarns and fabrics. The yarn count used in this study was produced by Golden Textiles for Wool. The count was produced 60/2 metric by using (S) twist using woolen fibers with a 22.5 micron, length 85 mm and polyester fibers with 3.3 denier, length 88 mm. The number of fiber in cross section is 30 fibers. The count was produced using four values of the different twist factor (75, 85, 95, 105) with using twist (580, 660, 735, 815 ) twist/m According to the twist factor used. And using four different mixing ratios of wool and polyester (30% wool - 70% polyester) with number of fibers 9 wool 21 polyester, (45% wool - 55 polyester) with number of fibers 13.5 wool 16.5 polyester, (60% wool - 40% polyester) with number of fibers 18 wool 12 polyester, (75% wool - 25 polyester) with number of fibers 22.5 wool 7.5 polyester. The process of producing the fabrics was carried out by using the textile texture plain 1/1 and then processed using the following stages (singeing process - washing process - crabbing process - drying process - shearing process - pressing process – setting of steam process - shrinkage process).

Keywords
Performance Properties, Mixed Wool Fabrics, Twist Factor

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