National University of Science and Technology

Think in Other Terms

NAME:OBERT CHAVUNDUKA

STUDENT No.: N002 1056D

FACULTY OF INDUSTRIAL TECHNOLOGY

DEPARTMENT OF TEXTILE TECHNOLOGY

PROJECT TITLE: The effect of drying temperatures on the quality and processability of polished cotton plied yarns.

This dissertation was submitted in partial fulfilment of the requirements for the Bachelor of Textile Technology (Honours Degree)

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Abstract

The project focuses on investigating the effect posed by drying temperatures on polished cotton plied yarn properties, which in turn affect the quality of yarn. Emphasis was directed towards how each ingredient (cotton fibre and starch paste) used during polishing would respond to certain drying temperatures hence deducing the ultimate impact of these temperatures on the entire polished cotton plied yarn. To achieve the interest of the project a break study on the drying stage of the polishing process was carried out. Various drying temperature ranges were noted as well as their corresponding impact on the quality and yarn properties of the polished cotton plied yarn samples. Tensile strength tests, polish uptake and mildew attach analysis were carried out on the obtained samples. An overall conclusion of using a range of drying temperatures of 65°C to 70°C proved to impart optimum tensile strength on the processed cotton plied yarn. However the yarn obtained from this temperature range was greatly susceptible to mildew attack. Optimum tensile strength properties as well as resistance to mildew attack were obtained on the Radio Frequency (RF) dried samples. The production work was carried out in the Polishing department at Twine and Cordage Manufacturing Company.