BUSITEMA UNIVERSITY
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FINAL YEAR PROJECT REPORT

INVESTIGATING HOW POLY-COTTON BLEND AND THE GSM OF WOVEN FABRIC AFFECT BURSTING STRENGTH

BY

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ABSTRACT

There are a number of methods that are employed in the manufacturing of fabric. Some of these methods include; knitting, non-woven, weaving, and with these new technologies, more are yet to surface. Notably, the woven fabrics show the best levels of dimensional stability and good cover. One of the most important characteristics of woven fabric is strength. Strength is also measured in tensile, tearing or bursting strength. But so many factors are related to the fabric strength like yarn count, twist, fiber fineness, GSM, stiffness, fiber density, blend ratio, fabric structure, cover, yarn density, no. of layer, tightness factor and so on. It is very complex to establish a mathematical relation to determine strength considering all these parameters. This paper will make clear understanding on the factors that directly or indirectly influence the woven fabric's bursting strength and thus, will be more helpful during further research in woven fabric strength prediction. The results indicate negative relationship between GMS of woven fabric and bursting strengths.

DECLARATION

I ASINGURA DAVID WAMANANU, REG NO BU/UP/2016/499 hereby declare that this project work is my original work and that the information contained in this study is out of hard work and research, except where explicit citation has been made and it has not been presented to any institution of higher learning for any academic award.

Signature: ..... Date: 04/01/2021

APPROVAL

This project entitled "Modification of plastic waste roofing tiles using Titanium dioxide Nano particles for self-cleaning" has been written under the supervision of;

Main supervisor

Dr. NIBIKORA ILDEPHONSE

Signature: .....

Date: .....

DEDICATION

With deep gratitude, I wish to dedicate this report to my parents Mr. and Mrs. WAMANANU ABEDNEGO. The timely support you have always given to me throughout my time in school and college is remarkably appreciated. In the same regard, my family and friends deserve such a special dedication.

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I would like to express my special thanks of gratitude to my supervisor, Dr. Nibikora Ildephonse as well Mr. Dan Tigarana who helped me with lab work and other technical guidance. It is them that gave me the golden opportunity to do this wonderful project, which also helped me in doing a lot of Research and I came to know about so many new things. I am really thankful to them. Secondly, I would also like to thank my parents and friends who helped me a lot in finalizing this project within the limited time frame. The material and psychological support accorded by them was much needed and valuable. Above all, am grateful to the almighty God for the good health he has given me throughout this tough season.

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Abbreviations/acronyms

GSM- Grams per square Meter

P/C- Polyester-Cotton blend

CHAPTER ONE

Introduction

There is an increase on demand of textiles in various areas of application. The demand of textiles is normally based on the properties that are needed for final use. It is wrong to assume that a single factor can solely influence the purchase of textiles. It is through a combination of factors that the end user considers before making a purchase choice. Some of these factors may include; color, fashion, bursting strength, softness, washability, among others. Albeit most of the people may consider the aesthetic factors, the consumers that require specific fabric for a given purpose will always search for the technical factors. There is currently plenty of diversification in the textile industry and a lot of technical fibers are being produced for various uses. One of the commonest factors that is considered in technical fibers is the bursting strength. The strength of the fabric maybe important if the final product requires high durability of the final products and are subjected to higher tensional forces among other forces that may cause rupture to the fabric or the end product(Mwasiagi, 2017). The cotton-polyester blends have been on a high demand in the last decade. The demand of this blend can be attributed to various reason but their unique properties especially the strength have played the fore role. There are many factors that affect the bursting strength of the fabric, some of these factors include the material being used, method used to make the fabric, among others(Koç & Çinçik, 2012). Therefore, this paper has focused on specific factors that affect the bursting strength of the fabric. There are several reasons to support the use of certain factors as opposed to the others. The cotton-polyester blends should be on a high demand for the purpose of yielding positive relationship with bursting strengths. The demand of the blend can be attributed to various reasons but their unique properties especially the strength have played the fore role.

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