PROPERTIES OF CORE SPUN AND SPUN POLYESTER SEWING THREADS AND THEIR PERFORMANCE IN SEAMS

K.PARANAWIDANAGE

This thesis was submitted to the Department of Textile and Clothing Technology of the University of Moratuwa in partial fulfilment of the requirements for the Degree of Master of Science

Department of Textile and Clothing Technology
University of Moratuwa
Sri Lanka

May 2003

The work presented in the thesis in part or whole, has not been submitted for any other academic qualification at any institution.

UOM Verified Signature

K.Paranawidanage
(Candidate)

UOM Verified Signature

Mr. D.P.D. Dissanayake
(Supervisor)

ABSTRACT

At present number of sewing threads of different varieties are available in the market and there is no single polyester based substrate, which satisfies the criteria of the complete sewing thread. The thread must be able to withstand all of the stresses and strains applied to the thread during sewing and wear of the garment. Therefore selecting a proper thread to suite a particular fabric is very complex as it is important to minimize the sewing defects and improve the performance.

The core spun and spun polyester sewing threads are having different thread structures, which contribute to significant changes in their properties. Largely because of its low price and acceptable level of sewing performance, 100% spun polyester sewing thread is the dominant product in sales volume. But the results of the research show that the core spun thread possesses superior properties to those of the other threads, which would provide an answer to the major sewing problems frequently occurring in the apparel industry.

The core spun threads considered in this project are of two types, which are cotton wrapped and polyester wrapped core spun threads. When the thread is cotton wrapped it has very good needle heat resistance and polyester wrapped thread is excellent in physical properties and sewing performance. The fibrous surface of the core spun thread reduces shiny look and contributes to superior frictional characteristics.

In today's competitive market, cost is an important factor. To reduce the thread cost of garments without sacrificing seam and sewing performance a better thread selection method is required. The findings of this research on the properties of core spun and spun polyester sewing threads and their performance in seam would provide an insight to many unresolved problems still facing the apparel industry.

ACKNOWLEDGEMENT

The work presented in the thesis was carried out under the supervision of Mr. D.P.D. Dissanayake, Senior Lecturer of the Department and I wish to express my deepest gratitude for the advice & guidance during the course of the project.

I am indebted to Dr. Nirmali de Silva, Head of the Department of Textile and Clothing Technology for giving me the opportunity to carry out this research project and for the kind cooperation extended for the successful completion of the research.

I am much thankfull to Prof. Lakdas D. Fernando, former Head of the Department of Textile and Clothing Technology for the assistance given and Mr. N.L. Wanigathunga Senior Lecturer for being a member of the thesis committee and providing instructions to fulfill the requirements of the project.

Further I wish to extend my gratefulness to the staff members of the department, who has helped me in various ways during the project period and my special thanks would be forwarded to the labotatory staff, Mrs. D.Dissanayake, Mrs. P.Wanniarachchi, G. Senevirathna and Mr. Chandradasa for their kind corporation.

My sincere thanks would also be conveyed to Shadowline (Pvt) Ltd. and SR Gent (Pvt) Ltd. for providing me the fabrics and Textile Testing and Services Centre, Sri Lanka Standard Institution and Department of Textile and Apperal Technology, Open University of Sri Lanka for providing me some laboratory facilities.

My sincere appreciation would be given to my friends Senaka, Udya, Pradeepa, Chamari, Gamini and my parents for supporting me in various ways for the completion of the research work.

Finally I wish to express my gratitude to the Science and Technology Development Project of the Asian Development Bank for the financial assistance given to me in order to complete the Masters Degree by research.

TABLES OF CONTENTS

CHAPTER THREE

EXPERIMENTAL

CHAPTER FOUR

RESULTS & DISCUSSION

CHAPTER FIVE

List of Figures

List of Tables

List of Annexes

Abbreviations

MFA - Multi-fibre Arrangement

USA - United State of America

EU - European Union

TQM - Total Quality Management

UNIDO - United Nations Industrial Development Organization

P/P - Polyester Wrapped Polyester Core Spun Thread

C/P - Cotton Wrapped Polyester Core Spun Thread

SP - 100% Spun Polyester Thread

ISO - International Standard Organisation

Tkt - Ticket Number

Fig -Figure

120/75 - Needle thread tkt. 120/ Bobbin Thread tkt 75