



**BUSITEMA  
UNIVERSITY**  
*Pursuing Excellence*

## **FINAL YEAR PROJECT REPORT**

### **INVESTIGATING THE EFFECT OF PHOSPHATE AND ALGINATE AS ANTISTATIC TREATMENTS FOR POLYESTER FABRICS**

**By**

**NSIIMIRE MERCY**

**(BU/UG/2016/79)**

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**This final year Project Report is submitted to the Department of Textile and Ginning  
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Textile engineering of Busitema University**

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## **ABSTRACT**

We have all seen the sparks which fly when clothing is taken out of the clothes dryer, or when clothing is removed when the relative humidity is low. Clothing layers will develop an opposite charge as they rub against each other. When the layers are separated, one will retain its positive charge and the other its negative charge. Charged clothing induces a charge on the body (Seyam, 2009).

Polyester clothes carry a static charge, which causes the clothing to cling to the wearers' skin resulting into discomfort, sparks to the human body and these clothes soil easily or attract dirt. For clothing fabrics spark generation affects consumer preference for a garment or fabric. Polyester fabrics have high surface frictions which make them harsh and uncomfortable. This therefore requires antistatic finishing of polyester fabrics for apparel. The aim of this study was therefore to explore the potential of phosphate and alginate finishes in antistatic finishing of polyester fabrics.

## **Conclusion**

The phosphate treated fabric at 0.1% O.W.F concentration, 80 °C yielded higher efficacy with the best declining time of 6.85s. Hand laundering gave best durability results in relation to the performance properties, fabric appearance and handle compared to dry cleaning and therefore recommended for laundering of phosphate finished polyester fabrics.

**Key words:** polyester, frictional electrification, charge decay, phosphate, alginate and antistatic finishing.

**DECLARATION**

I NSIIMIRE MERCY BU/UG/2016/79 declare that the final year project information in this report has never been presented in any academic institution for an award.

Date.....

Signature.....

**APPROVAL**

This is to certify that the project titled INVESTIGATING THE EFFECT OF PHOSPHATE AND ALGINATE AS ANTISTATIC TREATMENTS FOR POLYESTER FABRICS has been executed under supervision by

Supervisors:

Ms. Namuga Catherine

Date.....

Sign.....

Dr. Kamalha Edwin

Date.....

Sign .....

## **DEDICATION**

My special gratitude to my father Mr. Mwebesa Edison, my mother Mrs. Jenerous Mwebesa, and my siblings for their continuous love, prayers and support. Not forgetting my lovely friends and relatives for always being there for me whenever I needed them.

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## Contents

|                                                                  |     |
|------------------------------------------------------------------|-----|
| ABSTRACT .....                                                   | i   |
| DECLARATION .....                                                | ii  |
| APPROVAL .....                                                   | iii |
| DEDICATION.....                                                  | iv  |
| ACKNOWLEDGEMENT.....                                             | v   |
| 1 CHAPTER ONE.....                                               | 1   |
| 1.1 Introduction .....                                           | 1   |
| 1.2 Background of the study .....                                | 1   |
| 1.3 Problem statement.....                                       | 2   |
| 1.4 Objectives.....                                              | 3   |
| 1.4.1 Main objective .....                                       | 3   |
| 1.4.2 Specific objectives .....                                  | 3   |
| 1.5 Justification.....                                           | 3   |
| 1.6 Significance .....                                           | 3   |
| 1.7 Scope.....                                                   | 4   |
| 1.7.1 Geographical scope.....                                    | 4   |
| 1.7.2 Conceptual scope .....                                     | 4   |
| 2 CHAPTER TWO.....                                               | 5   |
| 2.1 LITERATURE REVIEW.....                                       | 5   |
| 2.2 Introduction .....                                           | 5   |
| 2.3 Polyester fabric .....                                       | 5   |
| 2.4 Static charge generation in textiles .....                   | 5   |
| 2.5 The electrostatic charging mechanism (electrification) ..... | 6   |
| 2.6 Different ways of charge dissipation .....                   | 6   |

|       |                                                                                                                                  |    |
|-------|----------------------------------------------------------------------------------------------------------------------------------|----|
| 2.7   | Effect of Static Charge: Electrical Shocks and Sparks .....                                                                      | 7  |
| 2.8   | Antistatic finishing.....                                                                                                        | 7  |
| 2.8.1 | Phosphate finishes.....                                                                                                          | 7  |
| 2.8.2 | Alginate finishes .....                                                                                                          | 9  |
| 2.9   | Electrostatic measurement techniques .....                                                                                       | 9  |
| 2.9.1 | Simulation Measurements .....                                                                                                    | 10 |
| 2.9.2 | Direct Measurements .....                                                                                                        | 10 |
| 2.9.3 | Indirect Methods.....                                                                                                            | 10 |
| 3     | CHAPTER THREE.....                                                                                                               | 11 |
| 3.1   | MATERIALS AND METHODS.....                                                                                                       | 11 |
| 3.2   | Introduction .....                                                                                                               | 11 |
| 3.3   | Materials.....                                                                                                                   | 11 |
| 3.4   | Methods.....                                                                                                                     | 12 |
| 3.4.1 | EQUIPMENT .....                                                                                                                  | 12 |
| 3.5   | Functionalizing the polyester fabric with phosphate and alginate finishes.....                                                   | 13 |
| 3.5.1 | Sample preparation (Holme I., 2013) .....                                                                                        | 13 |
| 3.5.2 | Treatment liquor preparation.....                                                                                                | 13 |
| 3.5.3 | Application procedure (Kelly M.A, 2014).....                                                                                     | 14 |
| 3.6   | Determining the impact of finish materials on the static generation and dissipation<br>properties of the polyester fabrics. .... | 16 |
| 3.7   | Evaluating the durability of the applied finishes on treated polyester fabrics. ....                                             | 17 |
| 3.7.1 | Durability to performance properties.....                                                                                        | 17 |
| 3.7.2 | Durability of fabric appearance.....                                                                                             | 19 |
| 3.7.3 | Durability of fabric handle.....                                                                                                 | 20 |
| 4     | CHAPTER FOUR: RESULTS AND DISCUSSIONS .....                                                                                      | 21 |



|       |                                                                                           |    |
|-------|-------------------------------------------------------------------------------------------|----|
| 4.1   | Introduction .....                                                                        | 21 |
| 4.2   | Functionalization of the polyester fabric with phosphate and alginate treatment .....     | 21 |
| 4.3   | Determining the impact of the applied finishes on antistatic properties of polyester..... | 22 |
| 4.3.1 | Effect of concentration and temperature on phosphate finishing .....                      | 23 |
| 4.3.2 | Effect of concentration and temperature on alginate finishing .....                       | 24 |
| 4.4   | Evaluating the durability of the applied finishes .....                                   | 25 |
| 4.4.1 | Effect of laundering on performance properties (decling time) .....                       | 25 |
| 4.4.2 | Effect of laundering on the appearance of the treated fabrics .....                       | 26 |
| 4.4.3 | Effect of laundering on handle of the treated fabrics.....                                | 26 |
| 5     | CHAPTER FIVE .....                                                                        | 28 |
| 5.1   | CHALLENGES, RECOMMENDATIONS AND CONCLUSIONS .....                                         | 28 |
| 5.2   | Challenges .....                                                                          | 28 |
| 5.3   | Recommendations.....                                                                      | 28 |
| 5.4   | Conclusion.....                                                                           | 28 |
|       | APPENDIX .....                                                                            | 29 |
|       | References .....                                                                          | 30 |

**List of figures**

|             |                                                    |    |
|-------------|----------------------------------------------------|----|
| Figure 2-1. | Movement of electrons between materials.....       | 6  |
| Figure 2-2. | Accumulation of static charge .....                | 6  |
| Figure 2-3. | Chemical structure of phosphate.....               | 8  |
| Figure 2-4. | Chemical structure of sodium alginate.....         | 9  |
| Figure 3-1. | Conditioned fabric .....                           | 13 |
| Figure 3-2. | Prepared phosphate solutions .....                 | 14 |
| Figure 3-3. | Prepared alginate solutions.....                   | 14 |
| Figure 3-4. | Dipped samples placed in the oven.....             | 15 |
| Figure 3-5. | Treated samples placed in the oven for drying..... | 15 |

|                                                                             |    |
|-----------------------------------------------------------------------------|----|
| Figure 3-6. Stainless steel plate cleaned with toluene.....                 | 16 |
| Figure 3-7. Rubbed fabric sample unclamped to cling on the metal plate..... | 17 |
| Figure 3-8. Fabric falling to the ground on its own weight.....             | 17 |

### List of tables

|                                                                                                            |    |
|------------------------------------------------------------------------------------------------------------|----|
| Table 3-1. Materials, purpose and the potential source .....                                               | 11 |
| Table 3-2. Equipment, role and potential source .....                                                      | 12 |
| Table 3-3. Grading for fabric appearance .....                                                             | 19 |
| Table 3-4. Grading for fabric handle .....                                                                 | 20 |
| Table 4-1. Weights of the fabric and corresponding weights of the treatments .....                         | 21 |
| Table 4-2. Results of the simulation on polyester fabrics after phosphate and alginate treatments<br>..... | 22 |
| Table 4-3. Decling time after the various number of washings.....                                          | 25 |
| Table 4-4. Grading the appearance of the treated fabrics after several launderings.....                    | 26 |
| Table 4-5. Grading of handle for the treated fabrics after several launderings .....                       | 26 |

### List of acronyms

|                |                                                        |
|----------------|--------------------------------------------------------|
| PET            | Polyethylene terephthalate                             |
| RH             | Relative humidity                                      |
| AATCC          | American Association of Textile Chemists and Colorists |
| CAS            | Chemical Abstracts Service                             |
| GSM            | grams per square metre                                 |
| ASTM           | American Society for Testing and Materials             |
| O.W.F          | On weight of fabric                                    |
| T <sub>d</sub> | decling time                                           |