

FINAL YEAR PROJECT REPORT

PCMs Incorporated Textile clothing



Project Advisor

MrUmairMukhtar

Submitted By

RizwanMajeed	111711-021
MakhdoomSohail Abbas	101611-055
Muhammad UmairAkhtar	101611-072

School of Textile and design (STD)

University of Management and Technology

PCMs Incorporated Textile Clothing

Project Report submitted to the

School of Textile and design (STD)

For partial fulfilment of the requirement for the degree of

BS Textile Engineering

By

RizwanMajeed 111711-021

MakhdoomSohail Abbas 101611-055

Muhammad UmairAkhtar 101611-072

Table of Contents

Acknowledgments

Abstract

1. Chapter no 1- Methodology.....	i
1.1. Background knowledge.....	ii
1.1.1. What are PCMs.....	ii
1.1.2. History of PCMs.....	iii
1.1.3. Working Principle.....	iv
1.1.4. Classification.....	vii
1.2. Incorporated Technology.....	xiii
2. Chapter no 2- Data Collection.....	xvii
2.1. Data collection.....	xviii
2.1.1. Chemical list.....	xviii
2.1.2. Graphs.....	xxvii
2.1.3. Textile Clothing.....	xxix
2.1.4. Laptop Data.....	xxxi
2.1.5. Selection of PCM.....	xxxii
2.1.6. Flow Chart.....	xxxiii
3. Chapter no 3- Experimentation.....	xxxiv
3.1. Experimentation.....	xxxv
3.1.1. Fabric.....	xxxvi
3.1.2. Composition.....	xxxvii
3.1.3. Machines.....	xxxviii
4. Conclusion.....	li
5. References.....	li

List of Figures

Fig 1 Transformation of phases.....	v
Fig 2 Comparison of Sensible vs. Latent heat.....	vi
Fig 3 Classification of phase change materials.....	vii
Fig 4 Melting point vs. No of carbon atoms.....	viii
Fig 5 Advantages and Disadvantages.....	xiii
Fig 6 Classification of Microsphere.....	xv
Fig 7 Paraffin PCM core material with hard polymeric shell.....	xv
Fig 8 Blister packaging machine.....	xxxviii
Fig 9 Paraffin Powder machine.....	xxxix
Fig 10 Soft gel machine.....	xli
Fig 11 Cooling pad machine.....	xliii
Fig 12 Paraffin machine.....	xliv
Fig 12 Gel ice pack machine.....	xlvi
Fig 13 PCM filling machine.....	xlviii
Fig 14 Weighing style filling machine.....	1

ACKNOWLEDGEMENTS

In the name of Allah, the Most Gracious and the Most Merciful. Peace and blessings of Allah be upon Prophet Muhammad (P.B.U.H)

All Praise and thanks be to Allah. We praise and thank Him, ask Him for His help and forgiveness. We testify that there is no deity but Allah alone, without any partners, and that Muhammad (P.B.U.H) is His 'Abd (Worshiper) and Messenger Sallallahu 'AlaihiWaSallam.

We would like to express our gratitude towards our parents & members of UMT for their kind co-operation and encouragement which help us in the completion of this final project report and plant designing.

I take immense pleasure in thanking **Mr UmairMukhtar**(*Project Advisor*); **Dr Nabeel Amin** (*Head of Department*) for having permitted us to carry out the work by guiding us through proper channel.

Words are inadequate in offering our thanks to STD faculty and staff for their attention, supervision& devotion.

ABSTRACT

Abstract

Enough to toast your legs and it is very uncomfortable to continue using the laptop on your lap. The heat generates from laptop also reduce the lifetime of your internal components of laptop and make it halt and you need to restart your system. The project is to introduce Phase change material PCMs into Textile pad in order to prevent heating for sufficient long time and to protect your lap from the heat of the laptop. In order to do this we explain the types of material along with melting point and we detect the temperature of the laptop with different ways and according to that detected temperature we get the required chemical and introduced it into textile pad.