

**OPTIMIZATION OF THE PROCESSING VARIABLES IN THE
MELT SPINNING OF MONOFILAMENT FIBRES FOR
USE AS ABSORBABLE SURGICAL SUTURES**

ANODAR CHARUCHINDA

**A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
IN CHEMISTRY**

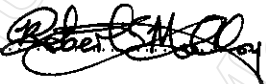
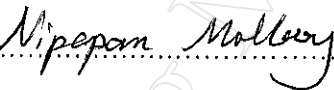
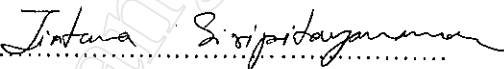
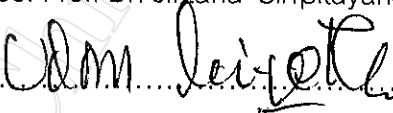

**GRADUATE SCHOOL
CHIANG MAI UNIVERSITY
FEBRUARY 2003**

OPTIMIZATION OF THE PROCESSING VARIABLES IN THE
MELT SPINNING OF MONOFILAMENT FIBRES FOR
USE AS ABSORBABLE SURGICAL SUTURES

ANODAR CHARUCHINDA

THIS THESIS HAS BEEN APPROVED
TO BE A PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY
IN CHEMISTRY

EXAMINING COMMITTEE

..... 	CHAIRMAN
Dr. Robert Molloy	
..... 	MEMBER
Dr. Nipapan Molloy	
..... 	MEMBER
Assoc. Prof. Dr. Jintana Siripitayananon	
..... 	MEMBER
Assoc. Prof. Dr. Udom Sriyotha	
..... 	MEMBER
Assoc. Prof. Dr. Werasak Udomkichdecha	

27 February 2003

© Copyright by the Graduate School, Chiang Mai University

ACKNOWLEDGEMENTS

I gratefully acknowledge my indebtedness to my supervisor, Dr. Robert Molloy, and my co-supervisors, Dr. Nipapan Molloy and Dr. Jintana Siripitayananon, for their inspiration, valuable guidance and constant encouragement throughout the course of this work.

I am also especially grateful to Professor Geoffrey Mitchell, Director of the Polymer Science Centre, Department of Physics, University of Reading, UK, for his guidance concerning the X-ray diffraction work carried out during my 6 months training in Reading from July-December 2001. I also wish to thank the technical staff of Thailand's National Metal and Materials Technology Center (MTEC) for their help and advice with the nuclear magnetic resonance (^1H , ^{13}C -NMR) and gel permeation chromatography (GPC) analyses.

Thanks are also due to the Chemistry Department and Faculty of Science Chiang Mai University, for providing me with the laboratory and library facilities, which made this study possible.

For financial support, I am indebted to the Rajabhat Chiang Mai Institute and the Graduate School of Chiang Mai University, both for my general expenses and for supporting my period of research training at the University of Reading.

Special personal thanks are also due to Mr. Yodthong Baimark for his help in preparing some of the fibre samples which I studied at Reading and for his help in various other aspects of the work.

Finally, I must acknowledge the enormous debt that I owe to my father and mother and also to my husband, daughter and sisters for their emotional support and constant encouragement throughout my education, culminating in this study for my Ph.D. I hope that my eventual success will have made my family feel that their sacrifices were all worthwhile.

Anodar Charuchinda

มหาวิทยาลัยเชียงใหม่
Chiang Mai University