EFFECTS OF PARTICLE SIZE AND FILLER CONTENT ON THE THERMOPLASTIC COMPOSITE PROPERTIES FROM KERUING BELIMBING

By

NORHASLINA BINTI SHARIF

Final Project Submitted in Partial Fulfillment for the Diploma in Wood Industry, Faculty of Applied Sciences, Universiti Teknologi MARA, Pahang

October 2004

ACKNOWLEDGEMENT

Alhamdulillah, thanks for Allah that give me strength to finish my final project paper entitle "Effects of Particle Size and Filler Content on the Thermoplastic Composite Properties from Keruing Belimbing".

Special thanks to my beloved parent who always give me advices and moral supports. Also thanks to my project advisor, Prof. Madya Dr. Jamaludin Bin Kasim for his guide, lesson and helping me in this final project.

Thanks also for who are involved either directly or indirectly in completing this project.

TABLE OF CONTENTS

TITLE

PAGES

· ·

PROJECT TITLE	i
APPROVAL SHEET	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
LIST OF PLATES	vii
LIST OF FIGURES	viii
LIST OF TABLES	ix
LIST OF ABBREVIATIONS	x
ABSTRACT	xi
ABSTRAK	xii

CHAPTER

1	1.0 INTRO	DUCTION	1
	1.1 Problem	Statement	2
	1.2 Objectiv	/es	2
		· · · · ·	
2	2.0 LITER	ATURE REVIEW	3
	2.1 Dipteroo	carpus (Keruing Spp)	3
	2.1.1	General Characteristic	3
	2.1.2	Structure	3-4
	2.1.3	Uses	4
	2.2 Compos	ites	4-5
	2.3 Plastic		5-6
	2.3.1	Polypropylene	6
	2.3.2	Physical and mechanical properties of polypropylene	7
	2.4 Thermo	plastic Composite	7-8

	2.5 Maleate	d Anhydride Polypropylene (MAPP)	8
3	3.0 MATE	RIALS AND METHODS	9
	3.1 Sample	Preparation	9
	3.2 Bulk De	ensity Analysis	9
	3.3 Blendin	g Process	10-14
	3.4 Board M	Manufacture	15
	3.5 Sample	Testing	15
	3.5.1	Tensile Test	15-16
	3.5.2	Bending Test (Modulus of Rupture)	16-17
	3.5.3	Water Absorption	18-19
4	4.0 RESUL	TS AND DISCUSSIONS	20
	4.1 Bulk De	ensity	20
	4.2 Strength	and Physical Properties	20-21
	4.3 Statistic	al Significant	21-22
	4.4.75.00		
	4.4 Effects	of Particle Size on the properties of thermoplastic	
	4.4 Effects Compos	of Particle Size on the properties of thermoplastic site	22-23
	4.4 Effects Compos 4.5 Effects	of Filler content on the properties of thermoplastic of Filler content on the properties of thermoplastic	22-23
	4.4 Effects Compos 4.5 Effects Compos	of Filler content on the properties of thermoplastic site	22-23 23-24
	4.4 Effects Compos 4.5 Effects Compos	of Filler content on the properties of thermoplastic site	22-23 23-24
5	 4.4 Effects Compose 4.5 Effects Compose 5.0 CONCI 	of Particle Size on the properties of thermoplastic site	22-23 23-24 25
5	 4.4 Effects Composition 4.5 Effects Composition 5.0 CONCLEREFENCE 	of Particle Size on the properties of thermoplastic site of Filler content on the properties of thermoplastic site LUSION	22-23 23-24 25 26
5	 4.4 Effects Compose 4.5 Effects Compose 5.0 CONCLE REFENCE APPENDE 	of Particle Size on the properties of thermoplastic site	22-23 23-24 25 26 27-32

EFFECTS OF PARTICLE SIZE AND FILLER CONTENT ON THE THERMOPLASTIC COMPOSITE PROPERTIES FROM KERUING BELIMBING

By

NORHASLINA BINTI SHARIF

October 2004

ABSTRACT

This study was conducted to determine the suitability of Keruing Belimbing as a filler in the making process of thermoplastic composite using polypropylene and MAPP as a coupling agents and there were used to overcome the incompatibility between the fillers and polymer phases and to improve the performance of composites by enhancing their strength properties. Based on the results, it was found that the higher percentage of filler content that we used, the higher value of strength properties that we can get. The strength properties of thermoplastic also increase with the size of particle that we used. It is thus concluded that Keruing Belimbing sawdust are suitable to be as filler in the making process of thermoplastic composite.