

OIL PALM EMPTY FRUIT BUNCH COMPOSITE


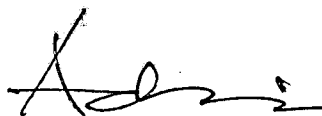
By:

ROSMAWATI BT. ABD. KAHAR

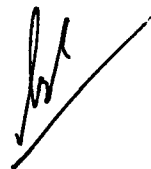
**Final Year Project Report Submitted in
Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science (Hons.) Polymer Technology
In Faculty of Applied Science, Universiti Teknologi MARA**

March 2004

This Final Year Project Report entitled "Oil Palm Empty Fruit Bunch Composite" was submitted by Rosmawati Abd. Kahar, in partial fulfillment of requirements for the Degree of Bachelor of Science (Hons) Polymer Technology, in the Faculty of Applied Sciences and was approved by



Assoc. Prof. Dr. Mohd. Hanafiah B. Abidin
Supervisor
BSc. (Hons.) Polymer Technology
Faculty of Applied Sciences
Universiti Teknologi MARA



Assoc. Prof. Hj. Mohd Muhiddin B. Ahmad
Head of Programme
B.Sc. (Hons.) Polymer Technology
Faculty of Applied Science
Universiti Teknologi MARA

Assoc. Prof. Dr. Ahmad Sazali B. Hamzah
Dean
Faculty of Applied Sciences
Universiti Teknologi MARA

Date: 25 MAY 2004

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	iii
TABLE OF CONTENTS	iv-vii
LIST OF TABLES	viii-ix
LIST OF FIGURES	x-xi
LIST OF ABBREVIATIONS	xii
ABSTRACT	xiii
ABSTRAK	xiv
CHAPTER	
1 INTRODUCTION	1-2
1.1 Objective of the project	2
2 LITERATURE REVIEW	
2.1 Composite	3-4
2.1.1 Definition of composite	4-5
2.2 Thermoset plastic	5-6
2.2.1 Polyester	6
2.2.1.1 General purpose	7
2.2.1.2 Hand lay-up	7
2.2.1.3 Light-stabilized	7

CHAPTER 1

INTRODUCTION

Composite is defined as a structural material, which consists of combining two or more constituents. The constituents are combined at a macroscopic level and are not soluble in each other. One constituent is called the reinforcing phase and the one in which it is embedded is called matrix. The reinforcing phase material may be in the form of fibres, particles or flakes which can be used either natural or recycle material. The matrix phase material is generally continuous such as metal, ceramic and plastic.

Composite offer several other advantages over conventional materials. These may include improved strength, stiffness, fatigue and impact resistance, thermal conductivity, corrosion resistance, etc. Besides, it has low mass properties compared to metal material, which requires in technology today especially in aerospace industry. Composite' s market price more cheaper than steel.

Composite material prepared in this project used two types of material. They are polyester resin as a matrix and oil palm empty fruit bunch as a reinforcing fibre. Application of reinforcing fibre is divided into two categories properties; first category

is in the form of short fibre and second category posses of crush fibre. The length of these fibres is measured into 3 cm long relative to short fibre but crush fibre is obtained by pass it threw a crusher. Besides, both categories have five identical proportion of fibre where consist of difference percentages (5%, 8%, 10%, 13%, 15%).

Polyester resin with additional of methyl ether ketone peroxide (MEKP) as a catalyst is used in order chemically cross linked occurred as well as laminated the oil palm empty fruit bunch (fibre) to get a new material which considered as composite material. Hand lay-up technique is used in preparing this composite material since polyester resin posses thermoset plastic behaviors.

1.1 Objectives

1. To study the effect of fibre length on the composite.
2. To study the properties of Oil Palm Empty Fruit Bunch (OPEFB) composite.