



**MARA UNIVERSITY OF TECHNOLOGY  
FACULTY OF MECHANICAL ENGINEERING**

**FINAL YEAR PROJECT  
DIPLOMA IN MECHANICAL ENGINEERING  
(KJP 365)**

**STUDY THE EFFECT OF PRESSURE ON POLYPROPYLENE/EPOXY  
PLATES WITH ENDS FIXED**

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## TABLE OF CONTENTS

CONTENTS	PAGES
DECLARATION	I
ACKNOWLEDGEMENT	II
ABSTRACT	III
CHECKLIST	IV
<b>CHAPTER 1 INTRODUCTION</b>	
1.1 Project Background	1-2
<b>CHAPTER 2 INTRODUCTION ABOUT MATERIAL</b>	
2.1 Background of material	3
2.2 Polypropylene fiber	4
2.3 Polypropylene characteristic	5-6
2.4 The chemistry of Polypropylene	7
<b>CHAPTER 3 THEORETICAL BACKGROUND</b>	
3.1 Plate theory	8
3.2 Tensile test	9-10
3.3 Weight fraction	13-14
3.4 Deflection	15-16
<b>CHAPTER 4 EXPERIMENTAL PROCEDURE</b>	
4.1 Sample preparation	17-19
4.2 Specimen Preparation	20-21

4.3	Experimental Set-up	
4.3.1	Tensile Test	22-24
4.3.2	Deflection Test	25-27
4.3.3	Weight Fraction	28-29

## **CHAPTER 5 EXPERIMENTAL RESULT AND OBSERVATION**

5.1	Analysis result and compare with theory	
5.1.1	Determination of Elastic Modulus Young	30-32
5.1.2	Determination of Material Weight Fraction	33
5.1.3	Determination of Deflection for Specimen	24-35
5.2	Observation during the test	
5.2.1	Tensile Test	36
5.2.2	Pressure Deflection Test	37
5.2.3	Weight Fraction Test	37

## **CHAPTER 6 DISCUSSION**

6.1	Tensile Test	38
6.2	Pressure Deflection Test	39
6.3	Problem occur during the test and process	40

## **CHAPTER 7 CONCLUSION** 41

## **CHAPTER 8 SUGGESTION** 42-43

<b>REFERENCE</b>	44
<b>TABLES</b>	V
<b>FIGURES</b>	VI
<b>APPENDICES</b>	VII

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## ABSTRACT

The main aim of the project is to determine the rigidity of Polypropylene/Epoxy composite plate subjected to uniform pressure. In general the following items are determined:

1. The material tensile strength ( $\sigma_T$ ) and Elastic Modulus Young (E)
2. The weight of fraction of samples.
3. Study the deflection of plate subjected to pressure.
4. Compare the experiment result with the theoretical analysis.
5. Observation of the failure surface.

Several layers of Polypropylene/Epoxy plate having thickness 3mm, 5mm, 7mm and 9mm were prepared and made into square plate of dimension 18mm x 18mm using specially made mould. The plates are then fixed using 4 bolts on the testing rigidity. Pressure is applied using air compressor various from 10 psi to 50 psi. The maximum deflection of the plate is measured using the dial gauge.

Observe failure of plate and maximum deflection of plate. Compare experimental value from theoretical analysis. From the study theoretical analysis and experimental, values give difference various from (66.6% to 88.8%) on pressure increase.