EFFECT OF LOADING RATES ON THE FRACTURE TOUGHNESS OF FIBER METAL LAMINATE KENAF SHORT FIBER/EPOXY/POLYESTER

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ABSTRACT

Fiber metal laminate is a material which is achieved by laminating fiber composite with a thin layer of metal. The fiber composite is sandwiched between two layers of sheet metal. A fiber composite made by combining kenaf short fiber with either epoxy or polyester is laminated with metal and subjected to loading rates with two approach; dynamic loading and static loading. Impact loading is applied as dynamic loading while a steady increase in loading is applied as static loading. The effect of both loading rates on two different FMLs is observed and analysis is made considering the fracture toughness of both materials when loads applied. Considering both static and dynamic fracture toughness of the material, it is shown that FML kenaf short fiber/epoxy has higher static fracture toughness than the FML kenaf short fiber/polyester and subsequently dynamic fracture toughness of FML kenaf short fiber/polyester is higher than FML kenaf short fiber/epoxy.

TABLE OF CONTENTS

CONTENTS	PAGE
ACKNOWLEDGEMENT	ii
ABSTRACT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF ABBREVIATIONS	xii

CHAPTER 1 INTRODUCTION

1.1	General	1
1.2	Problem Statement	3
1.3	Objectives of Study	4
1.4	Scope of Study	4
1.5	Significance of Study	5

CHAPTER II LITERATURE REVIEW

2.1	Fiber Metal Laminate	6
2.2	Fracture Toughness	7
2.3	Effect of Loading Rate	7
2.4	Previous Study	8
2.5	Summary of Literature Review	10

CHAPTER III METHODOLOGY

3.1	Introduction	11
3.2	Information Collection	11
3.3	Material Preparation	12