A STUDY ON WOOD CEMENT HYDRATION FROM 8 YEARS OLD AND 16 YEARS OLD OF PETAI BELALANG (Leucaena leucocephala)

By

NOORAZILA BT MOHAMAD RAZALI NURUL WAHIDAH BT CHE LEH

Final Project Paper in Partial Fulfillment for the Diploma in Wood Industries Faculty of Applied Science Universiti Teknologi Mara

November 2008

ACKNOWLEDGEMENT

We would like to express our deepest appreciation and sincere gratitude to the following parties or individuals who in one way or another have helped in making this project successful:

Shaikh Abdul Karim Yamani B. Zakaria

Marzuki b Abdul Rahman

Project Supervisor

En. Sardey Idris

En. Shahril

Department of Wood Industries, Faculty of Applied Science,

Universiti Teknologi MARA, Jengka, Pahang Darul Makmur

We also would like to appreciation to my family especially my parent. They give many advice and moral support to finish our thesis.

Above all to Allah we surrender and bow in prayer, glorifying and thinking him for making this project a reality. May God bless you all.

TABLE OF CONTENTS

Page

APPROVAL SHEET
DEDICATIONiii
ACKNOWLEDGEMENTiv
LIST OF TABLES
LIST OF FIGURES
LIST OF PLATESix
LIST OF ABBREVIATIONSx
ABSTRACTxi
ABSTRAK

CHAPTER

1 INTRODUCTION

1.1 Hydration	1
1.2 Problem statement	1
1.3 Justification.	.2
1.4 Objectives	.3

2 LITERATURE REVIEW

2.1 Field characters of Leucaena leucocephala	ŀ
2.2 Portland cement	
2.3 Composition of Portland cement	

2.4 Hydration of cement in wood	7
2.5 Waste Paper Sludge Ash (WPSA)1	0

3 MATERIALS AND METHODS

.1 Materials preparation

4 RESULTS AND DISCUSSION

4.1 Maximum temperature and time to reach maximum temperature15
4.2 Effect of age
4.3 Effect of Al ₂ (SO ₄) ₃ for 8 years old of <i>Leucaena leucocephala</i> 19
4.4 Effect of Al ₂ (SO ₄) ₃ for 16 years old of <i>Leucaena leucocephala</i> 21
4.5 Effect of (Na2SiO3) for the Leucaena leucocephala
4.6 Effect of WPSA for 8 years old of Leucaena leucocephala24
4.7 Effect of WPSA for 16 years old of <i>Leucaena leucocephala</i> 26
4.8 Effect of wood particles for other species

CONCLUSIONS	29
REFERENCESS	30
APPENDICES	33
VITA	77

WOOD CEMENT HYDRATION FROM 8 YEARS OLD AND 16 YEARS OLD OF

PETAI BELALANG (Leucaena leucocephala)

By

NOORAZILA BT MOHAMAD RAZALI NURUL WAHIDAH BT CHE LEH

November 2008

ABSTRACT

Wood cement hydration from 8 years old and 16 years old of Petai belalang

(*Leucaena leucocephala*) is a process before the manufacturing of Wood cement board. The objectives is, to determine the Maximum temperature (T_{max}) and time to reach Maximum temperature (t_{max}) for 8 years old and 16 years old. It also to study the effect of hydration process when added Aluminium sulphate (Al₂ (SO₄)₃), Natrium sulphate (Na₂SiO₃) and Waste Paper Sludge Ash (WPSA) in the hydration process. In this process, effect of 0.5%, 1.0%, 1.5% and 2.0% of Aluminium sulphate was recorded. For the Natrium sulphate, effect with 1.0%, 2.0% and 3.0% was recorded. For the WPSA, effect of 10%, 20% and 30% was recorded.