

**PRELIMINARY STUDY ON THE PHYSICAL AND MECHANICAL PROPERTIES OF
GYPSUM- SAWDUST BOARD**

**MUHAMMAD AL AMIN BIN ABDUL HAMID
ROSLEE BIN MOHAMMAD RAIS
MUHAMMAD YASSAR BIN SALLEH**

**DIPLOMA IN WOOD INDUSTRIES
UNIVERSITI TEKNOLOGI MARA
PAHANG**

APRIL 2011

ACKNOWLEDGEMENT

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

Praise to Allah for his blessing and guidance for us that we could complete our thesis about preliminary study on the physical properties and mechanical properties of gypsum-sawdust board on the required time. A lot of obstacle had been through and now it is the time for the assessment by the advisor.

Deepest gratitude goes to our advisor, Miss Siti NoorBaini Binti Sarmin. The knowledge you gave to us and all the comments are really useful to be applied in our final project.

We want to express our extreme appreciation to our final project partner, Muhammad Al Amin Bin Abdul Hamid, Muhammad Roslee Bin Mohamad Rais and Muhammad Yassar Bin Salleh and that we never been forgotten for all the commitments shows by us to finish this project.

For all individual that assist in completing this assignment either directly or indirectly, we are throw up our gratitude. Also, a lot thanks shoul been given to all of lecturers and staff in Department of Wood Industry Universiti Teknologi MARA. Lastly, we wish to our special gratitude to our beloved parents and family for their support throughout my study period.

	Page
APPROVAL SHEET	i
DEDICATION	iii
ACKNOWLEDGEMENT	iv
LIST OF TABLES	viii
LIST OF PLATES	ix
LIST OF FIGURES	x
ABSTRACT	xi
ABSTRAK	xii

CHAPTER

1.0 INTRODUCTION	1
1.1 General	1
1.2 Gypsum board.....	2
1.3 Problem Statement	3
1.4 Significant of study.....	4
1.5 Objective	5
2.0 LITERATURE REVIEW	6
2.1 Composite.....	6
2.1.1 Raw material.....	6
2.1.2 Application of composite material.....	8
2.1.3 Market distribution.....	10

2.2	Wood waste utilization.....	12
2.2.1	Type of wood waste.....	13
2.3	Gypsum board.....	16
2.3.1	Type of gypsum board.....	16
2.3.2	Filler in gypsum board.....	17
2.4	Sawdust	18
2.4.1	Utilization of sawdust.....	18
2.4.1.1	Wood waste- fired boiler/ kiln drying...	18
2.4.1.2	Briquette production.....	19
2.4.1.3	Board manufacturing.....	20
3.0	MATERIALS AND METHODS	21
3.1	Raw Material.....	21
3.1.1	Sawdust.....	21
3.1.2	Gypsum.....	21
3.2	Board manufacturing.....	22
3.2.1	Mixed sawdust.....	23
3.3	Board cutting.....	30
3.4	Sample Testing.....	31
3.4.1	Moisture content.....	31
3.4.2	Density.....	31
3.4.3	Bending Strength.....	32
3.4.4	Thickness Swelling and Water Absorption.....	34

Preliminary Study of the Physical and Mechanical Properties of Gypsum-Sawdust Board

BY

MUHAMMAD YASSAR BIN SALLEH

MUHAMMAD AL-AMIN BIN ABD HAMID

ROSLEE BIN MOHAMAD RAIS

APRIL 2011

Abstract

The project was carried out by student's last semester Diploma Perakayuan industry. This study aims to solve the growing problem of tons of wood waste in the timber mills, such as bark, slabs, sawdust, wood chips and others. To overcome this problem the study was to find a new alternative to the use of wood waste is to be a wood product similar to particleboard or cement board is gypsum-board sawdust.