Properties of Oriented Strand Board (OSB) Using Admixture of Leucaena Leucocephala and Acacia Mangiun

By:

Syamsul Aidi Bin Fauzi Rosmadi Bin Mamat

Final Project Paper Submitted in Partial Fulfillment for the Diploma in Wood Industry, Faculty of Applied Sciences, Universiti Teknologi MARA, Pahang

April 2007

ACKNOWLEDGEMENT

First of all, we would like to take this opportunity to express my special thanks to the Almighty Allah S.W.T for Blessing and Strength rendered to me to complete our final project paper on time. 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:

En. Sardey Idris

En. Shahril

All Wood Industries staffs

Department of Wood Industry, Faculty of Applied Sciences, Universiti Teknologi MARA, Jengka, Pahang Darul Makmur

Cik Norrohana Binti Ahmad En. Wan Mohd Nazri Bin Wan Abdul Rahman Prof. Madya Dr. Jamaludin Bin Kasim

Project Supervisor

Pn. Sa'adiah bt Sahat

Lecturer of Statistical Analysis

Ainol Munirah Bt. Abd. Jalil Mufidah Bt. Md Husin

Students of Diploma in Wood Industries

Finally, I also to special thanks to my beloved friends and my group for their support to become my inspiration to finish this project. I also to extend my appreciation to those who are involved either directly of indirectly in completing this project. May Allah S.W.T bless you. Thank you.

LIST OF TABLES

Tables		Page
2.1.	Mechanical Characteristics	10
2.2.	Properties of OSB Grades	18
2.3.	Physical Properties of OSB	21
3.1.	Stages in Hot Press Section	37
4.1.	Performance of Mix Leucaena 8 years and Acacia	43
4.2.	Performance of Mix Leucaena 16 years and Acacia	50

LIST OF FIGURES

Figure		Page
2.1.	OSB Process	17
3.1.	OSB Board Making Process	29
3.2.	Flow of Testing	39
3.3.	Sampling and Cutting	40
4.1.	Modulus of Rupture (MOR) for Major Axis	44
4.2.	Modulus of Rupture (MOR) for Minor Axis	45
4.3.	Modulus Of Elasticity (MOE) for Major Axis	46
4.4.	Modulus Of Elasticity (MOE) for Minor Axis	47
4.5.	Internal Bonding	48
4.6.	Thickness Swelling	49
4.7.	Modulus of Rupture (MOR) for Major Axis	51
4.8.	Modulus of Rupture (MOR) for Minor Axis	52
4.9.	Modulus Of Elasticity (MOE) for Major Axis	53
4.10.	Modulus Of Elasticity (MOE) for Minor Axis	54
4.11.	Internal Bonding	55
4.12.	Thickness Swelling	56

PROPERTIES OF ORIENTED STRAND BOARD (OSB) USING ADMIXTURE OF LUECAENA LEUCOCEPHALA AND ACACIA MANGIUM

By Syamsul Aidi Bin Fauzi Rosmadi Bin Mamat

April 2007

ABSTRACT

Oriented Strand Board (OSB) is a new type of wood composite, which is yet to be commercially produced in Malaysia. It is made from long, thin and narrow wood strands bonded by a synthetic resin and converted into a solid panel during the hot pressing operation. This type of board is considered as an engineered product with a great strength and dimensionally stables. This paper discusses the strength properties of OSB made from *leucaena leucocephala* mix to *Acacia mangium* (face and back use to *leucaena* and core with *acacia mangium*). The study showed that the OSB made at density about 700kg/m³ with 7% resin content comply with the minimum specification of base by the Europe Standard.