

# 2014 年臺灣國際科學展覽會 優勝作品專輯

作品編號 120015

參展科別 環境科學

作品名稱 Reuse Waste and Save the World by  
Production Fiber Reinforced 'CB' made  
from Empty Fruit Bunch (EFB)

得獎獎項 四等獎

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## **Abstract**

At present Malaysia is the largest exporter of palm oil in the international market. In the process of extraction of palm oil from oil palm fruit, biomass materials such as palm empty fruit bunch (EFB) and palm pressed fibre (PPF) are generated as waste products. Natural fibres reinforced cement-based materials have gain increasing application in residential housing components. One of the natural fibres considered is oil palm empty fruit bunches (EFB) fibres which offer advantages such as availability, renewability, low cost and the established technology to extract the fibres. This study investigates the properties of cement board incorporated with large amount of oil palm EFB fibres

Among the tests conducted was compressive strength, density, water absorption and thickness swelling tests. It was found that high EFB fibres content lead to lower strength and higher absorption . The results also indicate that high EFB fibres contents reduced the self-weight of the blocks and the resulting blocks can be classified as lightweight cement blocks suitable to be used as lightweight walling materials.

Our research is to study the production of cement board using Empty fruit bunch(EFB)These board were made from empty fruit bunch, cement and water. Two chemical are added is aluminium sulphate and sodium silicate. Cement : EFB mixture by weight was 2.5:1, 2.75:1 and 3.0:1 used to produces a cement board.

**KEYWORDS:** Cement board, compressive strength, oil palm empty fruit bunches fibres(EFB).

## 評語

Palm Empty Fruit Bunch (EFB) was used as waste product to produce fiber reinforced cement-based materials for residential housing component application. Compressive strength, density, water absorption and thickness swelling were tested. This is a very interesting work for further housing component applications.