

UNIVERSITI TEKNOLOGI MARA

**PHYSICAL AND MECHANICAL PROPERTIES OF
GYPSUM-PAPER SLUDGE BOARD IN
FURNITURE APPLICATION**

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MECHANICAL AND PHYSICAL PROPERTIES OF GYPSUM-PAPER SLUDGE BOARD IN FURNITURE APPLICATION

ABSTRACT

This research was carried out in order to determine the mechanical and physical properties of Gypsum-Paper sludge Board. The sample was manufactured by mixing gypsum cement with paper sludge, with different proportion 90:10, 80:20, and 70:30 respectively. Bending strength, internal bonding strength, water absorption and moisture content was carried out based on Japanese Industrial Standard; JIS A 5908:2003 Particleboard (2003) and JIS A 6901:2005 Gypsum Boards (2005). From the result, it shows that 80:20 mixing ratio, the modulus of rupture (MOR), Modulus of Elasticity (MOE) and internal bond strength shows the better performance compared to 90:10 and 70:30 mixing ratio. By increasing addition of sludge, the strength was slightly decreased. The water absorption was increased parallel to each other on the increasing of sludge addition. In conclusion, paper sludge can be used as a substituted filler in gypsum board manufacturing for furniture application.