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Title: Utilisation of Fiber Sludge Refuse in Gypsum Fiberboards

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ABSTRACT:

No waste paper is available in the required amounts in Hungary with acceptable price and light wood species suitable for making gypsum particleboards are not readily available, experiments were accomplished to use fibre sludge from sulphate pulp mill using straw as reinforcing material in gypsum fibreboards. Moreover, the addition of lime sludge, also available as waste in this mill was investigated.

A new process was developed characterised by a two-stage fluffing of the fibre sludge and addition of the lime sludge to reduce the setting time of the binder and to avoid formation of lumps and balling in the mixing process of the furnish. The new process and the product-fiberboard- is environmental friendly as material, which until now have not been utilised industrially, but this may change in the future.

The fabricated boards utilising natural gypsum (NAT), flue-gas desulfurization gypsum (FGD), phospho gypsum (PHO) and stucco gypsum (STU) show comparable properties with those of published data of commercial gypsum fiberboards. Boards made of various kinds of plaster show different bending strength properties. The best values are shown by boards made with FGD and PHO. However, the differences with other boards are not high, so the conclusion can be made that fiber sludge is a good material as reinforcement for gypsum fiberboards.

The main goal of this research (supported by European Union, European Social Funds, TÁMOP 4.2.1.B-06/1/KONV-2010-0006) was to find a new production technology to process three wastes by intelligent products (gypsum fiberboards).

Key words: gypsum, fiber sludge, lime sludge, gypsum fiberboard, environmental friendly products,