

The Influence of Physical-Mechanical and Thermal Properties of Hemp Filling Materials by the Addition of Energy Byproducts

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Abstract : This article describes to what extent the addition of energy by-products into the structures of the technical hemp filling materials influence their properties. The article focuses on the changes in physical-mechanical and thermal technical properties of materials after the addition of ash or FBC ash or slag in the binding component of material. Technical hemp filling materials are made of technical hemp shives bonded by the mixture of cement and dry hydrate lime. They are applicable as fillers of vertical or horizontal structures or roofs. The research used eight types of energy by-products of power or heating plants in the Czech Republic. Secondary energy products were dispensed in three different percentage ratios as a replacement of cement in the binding component. Density, compressive strength and determination of the coefficient of thermal conductivity after 28, 60 and 90 days of curing in a laboratory environment were determined and subsequently evaluated on the specimens produced.

Keywords : ash, binder, cement, energy by-product, FBC ash (fluidized bed combustion ash), filling materials, shives, slag, technical hemp

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