

## **Application of Biomass Ashes as Supplementary Cementitious Materials in the Cement Mortar Production**

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**Abstract :** The production of low cost and environmentally friendly products represents an important step for developing countries. Biomass is one of the largest renewable energy sources, and Serbia is among the top European countries in terms of the amount of available and unused biomass. Substituting cement with the ashes obtained by the combustion of biomass would reduce the negative impact of concrete industry on the environment and would provide a waste valorization by the reuse of this type of by-product in mortars and concretes manufacture. The study contains data on physical properties, chemical characteristics and pozzolanic properties of obtained biomass ashes: wheat straw ash and mixture of wheat and soya straw ash in Serbia, which were, later, used as supplementary cementitious materials in preparation of mortars. Experimental research of influence of biomass ashes on physical and mechanical properties of cement mortars was conducted. The results indicate that the biomass ashes can be successfully used in mortars as substitutes of cement without compromising their physical and mechanical performances.

**Keywords :** biomass, ash, cementitious material, mortar

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