Characterization of Polystyrene Concrete Composites For Thermal Building Isolation

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The used energy for heating or cooling of buildings represents about 30% from worldwide energy consumption. In very few places in the world, the buildings do not precise heating or cooling. The energy consumption for heating or cooling of the buildings could be reduced by improving the climatization system and by a better isolation of walls. The perspectives in the energy field in general and especially in thermal energy, are not at all optimistic, observing the price evolution for fossil fuels, so that we can suppose that many more peoples will understand the fact that thermal rehabilitation by a better isolation is the best way to reduce the energy costs.

Among various possibilities for a better isolation the polymer- concrete composites seem to be the most spread, as for instance polystyrene concretes and mortars. Two variants are applied: sandwiches of a polystyrene sheet between two other concrete sheets, or polystyrene- concrete compound. The concretes based on expanded polystyrene (EPS) are composed from high performance concrete mixed with EPS spheres [1]. The inclusion of the polystyrene in concrete matrix can yield a concrete having various characteristics [2]. The present work presents some results concerning the characterization of polystyrene concrete composites in the preparation stages, especially by rheometric methods and some physical and chemical characteristics of the final composite.

References: