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MEASUREMENTS OF THE THERMAL CONDUCTIVITIES OF SOME COMMONLY USED INSULATING MATERIALS AFTER WETTING

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Abstract

Currently, thermal insulation of buildings is required from both an energy savings perspective and a money savings perspective. Insulation is primarily installed on the outer surface of the buildings. Weather and other circumstances can produce humidity that can act on the building structure, e.g., by changing its heat capacity, the heat transfer coefficient and/or other factors. As a result, it is important to measure the sorption behaviors of the construction materials. To perform sorption measurements, we use a desiccator (Venticell 111 type) to dry the samples and a climatic chamber (Climacell 111 type) to wet the materials. With these two chambers, we can achieve the relevant moisture content of different humidity levels and create a sorption isotherm graph for the sample. During the measurements, four different types of insulations were used (a mineral wool, EPS30, graphite-doped EPS, and yellow colored Extruded Polystyrene).

Key words: climacell, holometrix, insulation materials, moisture sorption, venticell

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