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## **ASSESSMENT OF STRUCTURE AND MOISTURE INFLUENCE ON THE PROPERTIES OF LOOSE-FILL CELLULOSE INSULATION**

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### **Abstract**

The effectiveness of thermal insulation materials mostly depends on their thermal conductivity. The low thermal conductivity is predetermined by density, structure, moisture content and temperature of material and, considerably less, by other indices. Loose-fill cellulose insulation is allocated to the group of materials, the density of which fluctuates within large limits. This property is related not only to application of cellulose wool in different constructions, but also to technological aspects of production and operating characteristics. Cellulose wool of higher density is used to prevent settling of thermal insulation layer in constructions. This study covers the investigations performed as to thermal conductivity and granulometric composition of loose-fill cellulose insulation, as well as to assessment of impact of moisture content on this index. For description of relationship of thermal conductivity, the regression equations were obtained. The relationship between density and load of loose-fill cellulose insulation of different structure was evaluated. Using the scanning microscopy, the main elements of cellulose wool were established and the mechanism of impact of structure on thermal conductivity and density of material was explained.

*Key words:* cellulose wool, fraction, structure, thermal insulation material

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