Determination of Critical Moisture Content In Porous Materials by IR Thermography

by A. Tavukçuoğlu* and E. Grinzato**

** Middle East Technical University, Department of Architecture, Ankara - Turkey*
*** Consiglio Nazionale delle Ricerche, CNR-ITC Padova – Italy*

Abstract

This study is focused on the improvement on the porous material characterisation, measuring the transition stage between the saturated and dry phases, which has been defined in literature as the critical moisture content (Θ_c).

This study develops a procedure based on Quantitative IR Thermography ($QIRT$) determining the effective Θ_c, as a physical property for the porous material. The Θ_c for San Marco bricks were examined in laboratory by $QIRT$ and the standard gravimetric method (SGM). It was seen that $QIRT$ can be used to determine the Θ_c and was also found to be more practical and sensitive than the SGM. The results obtained in the laboratory were promising to give the hints of methods for quantitative moisture content measurements and in-situ $QIRT$ investigations.

This article was published in the QIRT Journal 3.2.