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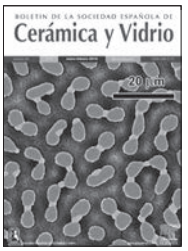

Noticias, Cultura y Tecnología

Nota técnica: Ceramic materials with improved thermal comfort

REVIGRES LDA

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CENTI – CENTRE FOR NANOTECHNOLOGY AND SMART MATERIALS

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This work is part of an applied R&D project co-financed under PT2020 program, with Revigrés as promoter and CeNTI as co-partner. The project envisages the development of ceramic tiles with improved thermal comfort.

Ceramic tiles are widely used for flooring applications due to their technical characteristics. The main advantages of ceramic tiles comparatively with wood or cork tiles are the resistance to scratching and abrasion, water resistance, durability, among other properties. However, ceramic tiles are commonly considered as "cold flooring" when applied in indoor environments, and as "hot flooring" in outdoor environments. Therefore, the main goal of this work was to improve the thermal comfort of ceramic tiles, by means of surface modification for decreasing the thermal conductivity of ceramic tiles for indoor application and for increasing the surface reflectivity of ceramic tiles for outdoor application.

For the first purpose – decrease the thermal conductivity – low thermal conductive materials were applied on the ceramic tiles, through a surface treatment. The performance of the obtained samples was evaluated with the use of a thermography image camera to determine the thermal profile of the contact surfaces (palm and the sample surface), after 30 seconds of contact. In these experiments, it was observed that the mark of palm after contact time was more visible in original sample (without surface treatment), which means that a prompt heat transfer occurred and, consequently, that the surface of original sample presented a higher thermal conductivity.

For the second approach, IR-reflective pigments were incorporated on the ceramic surface treatment. The obtained samples, as well as wood samples for comparison purposes, were characterized by experiments of exposure to infrared radiation. In these experiments, after 30 minutes of exposure the temperature in the surface of wood samples was higher than the temperature in the surface of ceramic materials.

This work concluded that the low thermal conductive materials applied in ceramic tiles became the surface of these materials pleasant to be touch and the incorporation of reflective materials in ceramic materials decreases the temperature reached in the surface of these samples.

Este proyecto ha participado en la 40 edición de los premios Alfa de Oro, otorgados por la Sociedad Española de Cerámica y Vidrio durante la Feria Internacional de Cerámica de Valencia CEVISAMA 2016.

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