

Title: Functionalizing ceramics: An overview of intelligent tiles.

Abstract: Ceramic tiles present extended indoor or outdoor surface areas that can be functionalized; nevertheless, design aspects remain the primary consumer preference. Moving globally in an integrated environment, decoration will increasingly be accompanied by intelligence. Just like how the coating industry evolves from decorative to protective and subsequently intelligent coatings, tiles are prompt to develop intelligence for the benefit of the end-user. Nanotechnology has proved a great tool in developing robotic ceramics – robotics is defined by the interaction ability of a body with its surrounding environment. Among others, Photocatalytic coatings based on nanocrystalline titanium dioxide are already present for expressing self-cleaning, anti-soiling and self-sterilizing properties. Piezochromic or thermochromic materials are still to find their application potential. Conductivity is a challenge to be soon addressed. Production or storage of electrical energy may change the way we use and appreciate ceramic tiles. Hybrid materials will revolutionize the way we use ceramic tiles. The presentation is a daring envision of a bright and safe future when ceramic tile surfaces can become innovation heroes by solving old problems in novel ways.