

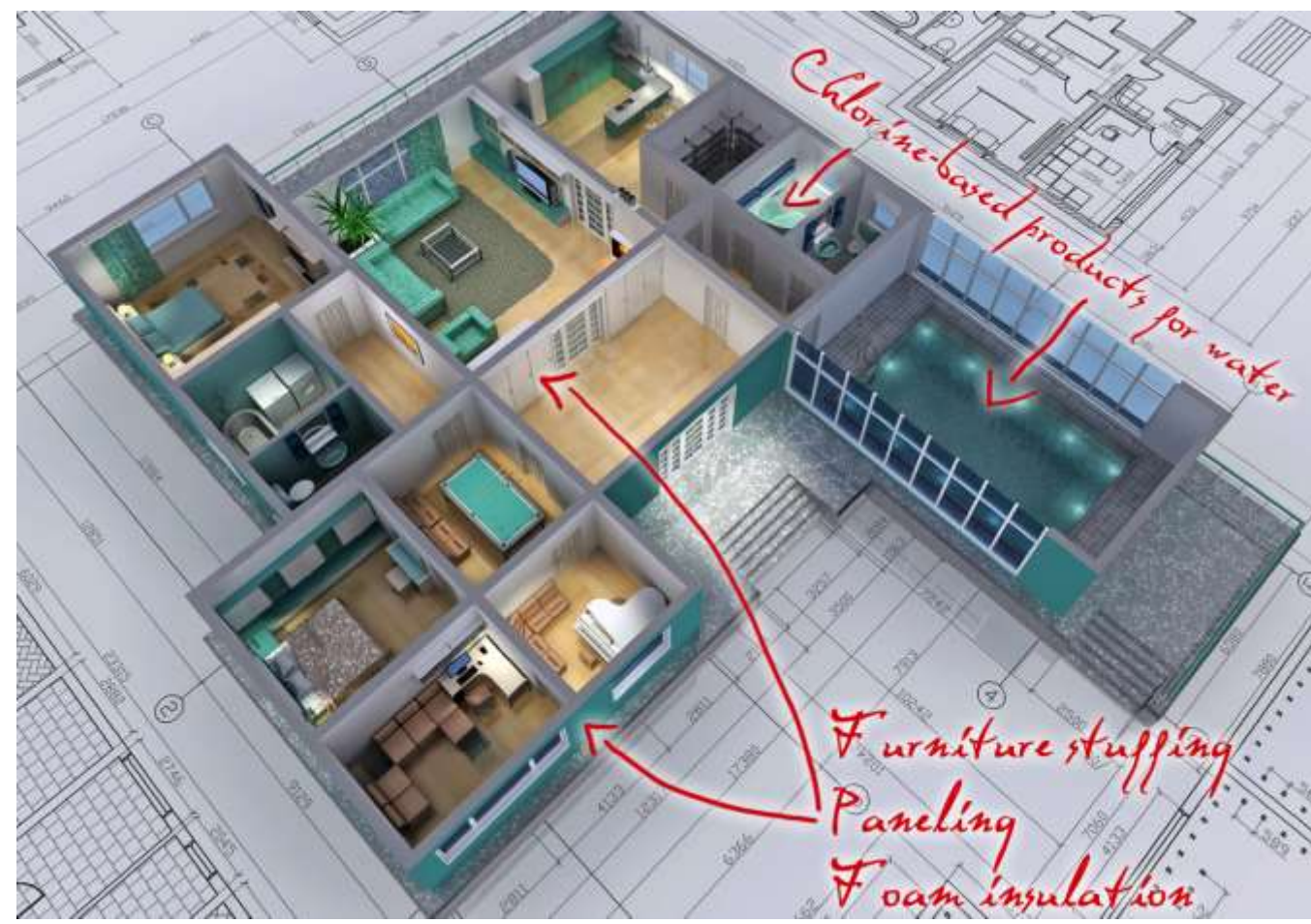
A novel manufacturing process for photocatalytically activate ceramic tiles by digital printing

Would you breathe?

Air pollution has a negative impact for citizens' health, reducing human life expectancy by more than 8 months on average, and by more than 2 years in the most polluted areas.

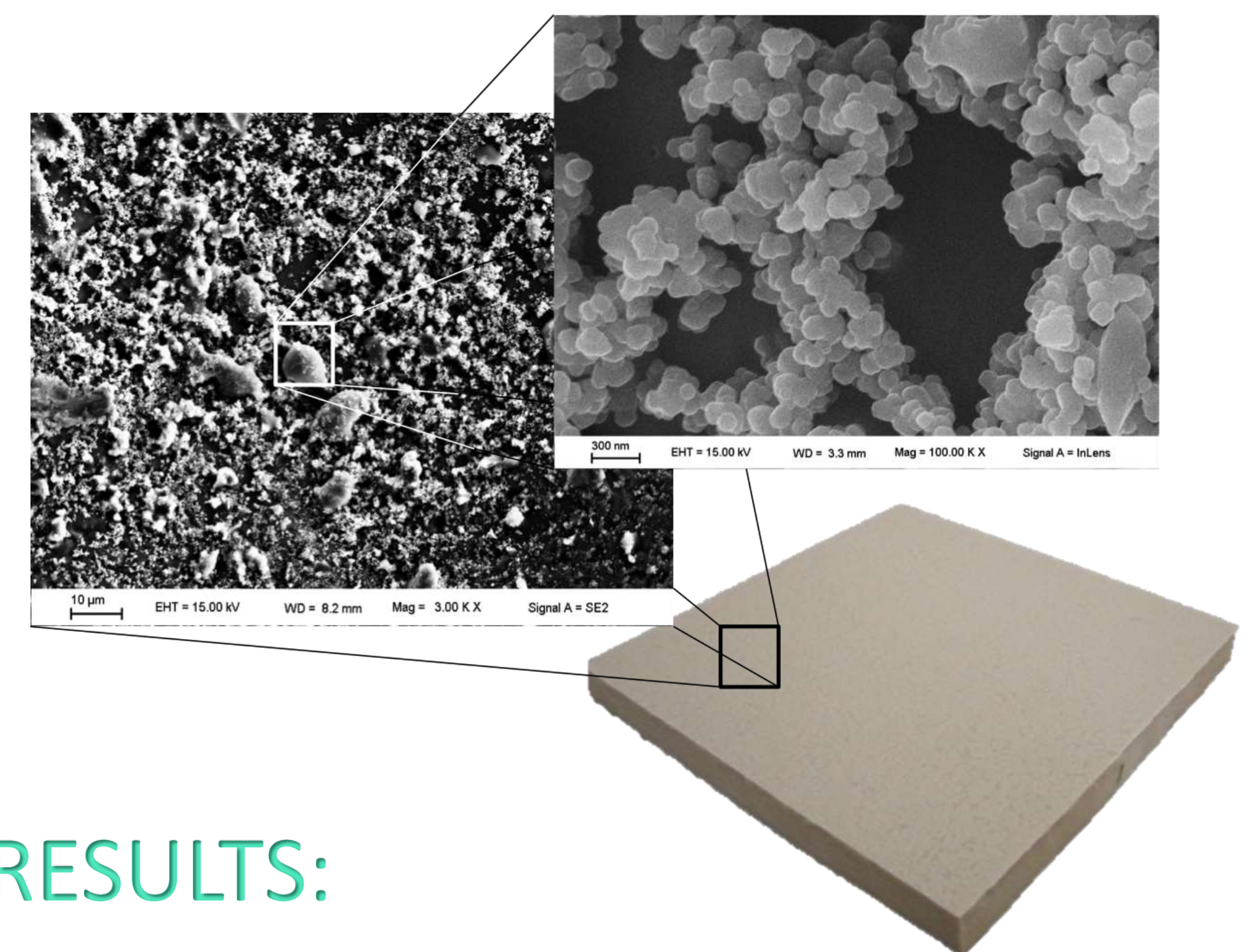


Is your house safe?



The DIGITALIFE PROJECT: Photocatalytic surfaces

A novel manufacturing process for photocatalytically activate ceramic tiles by digital printing: the DIGITALIFE project will use digital printing technology, thus representing an important paradigm shift respect to the state-of-art TiO_2 .



OBJECTIVES:

Photocatalysis is a chemical reaction mediated by light, humidity and by the so-called photocatalyst (e.g. TiO_2), and it is important for the oxidation of pollutants, biological toxic agents, and volatile organic molecules [1995, A.L. Linsebigler et al., Chem. Rev., 95 (3)]. For such reason, tiles coated with a photocatalyst represent very valuable products.

The **DIGITALIFE project** will overcome such drawbacks by using digital printing technology, thus representing an important paradigm shift with respect to the state-of-the-art TiO_2 coating processes.

The project will firstly demonstrate a technology based on suitably designed print heads using an ink based on solvents, TiO_2 , and additives (Si-based powders to allow the surface vitrification), able to coat a wide range of tiles surfaces (up to 1,5x3m).

EXPECTED RESULTS:

The Life+ "DIGITALIFE" project aims at demonstrating:

- A novel system for manufacturing high quality photocatalytically active tiles.
- The new system will make use of digital printing technology, where TiO_2 -based ink will be directly and homogeneously deposited on the tiles surface highly reducing TiO_2 excess and waste, and drastically reducing energy and water usage.
- A novel ink-based on water able to provide similar performances to the ones of the currently used solvent-based ink.
- The avoidance of solvent-based ink will further strengthen the positive environmental impact of the project, by completely eliminating petrochemical-based substances.

BENEFITS:

 <p>12% ENERGY SAVING</p> <p>Achieved by reducing the baking time necessary to dry TiO_2 based coating</p>	 <p>ALMOST 100% WATER SAVING</p> <p>Given by shifting from the spraying technology to the digital printing technology</p>	 <p>SAVING AT LEAST 50% OF TiO_2</p> <p>The use of TiO_2 will be much more optimised and much less TiO_2 will be wasted</p>	 <p>ABSENCE OF SOLVENTS</p> <p>Complete avoidance of solvent-based on substances of petrochemical origin, by using TiO_2 water-based ink.</p>
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THINK GREEN



FOR A BETTER LIFE

The green and sustainable DIGITALIFE solution will be validated and the project results widely disseminated in order to raise awareness on sustainable manufacturing, and on the positive environmental impact of eco-active tiles.