



**Efficient Environmental-Friendly
Electro-Ceramics
Coating
Technology and
Synthesis**



Think... environmentally

EFACTS is an EU funded project that develops "smart" functional materials that can work for the benefit of the environment and our everyday life. It is not only nanotechnology that can shape ordinary materials to "think green". EFACTS focuses to the implementation of novel synthetical procedures, clever application methods, like inkjet printing and valuable coatings to ordinary materials.

How do you think of...



- New application methods to produce nanotechnology coated ceramic tiles that can absorb light and become self cleaning and anti-bacterial, forever?
- Easily produced High Temperature Superconducting (HTS) systems, components and wires that create low energy consumption magnetic super - coils?
- Thermal barrier coatings that can be sprayed on surfaces and prevent energy losses?
- Inkjet printed electrolytes for efficient Solid Oxide Fuel Cells that transform water into environment friendly energy?
- High technology multiferroics that can boost the efficiency of transducers and data storage devices?

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Think... new materials

Ceramic functional layered coatings are strongly required for innovations in communication, electronic and energy technology and in catalysis. The potential of these ceramic coating materials is based on their manifold special material properties.

This project proposes an alternative synthesis of the layers based on the chemical solution deposition (CSD) process using ink-jet printing at ambient pressure. Main advantages are the lower investment, the faster deposition with higher yield and the processing under ambient pressure enabling a complete continuous processing.

The project successfully manages to:

- introduce flexible and cost effective production systems
- implement innovative synthesis pathways and soft chemistry to avoid excessive energy input and to produce the materials in semi-custom device manufacturing
- shorten the number of reaction steps by using 'clever pathways' during technological processing
- enable an environmentally friendly process by promoting water as the preferred medium and avoid the release of toxic gases



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