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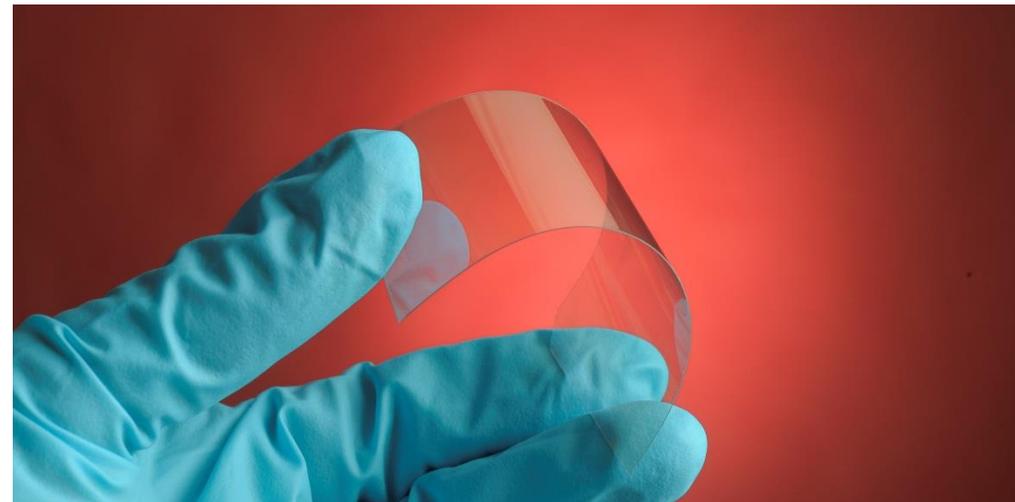
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**Project partners:**

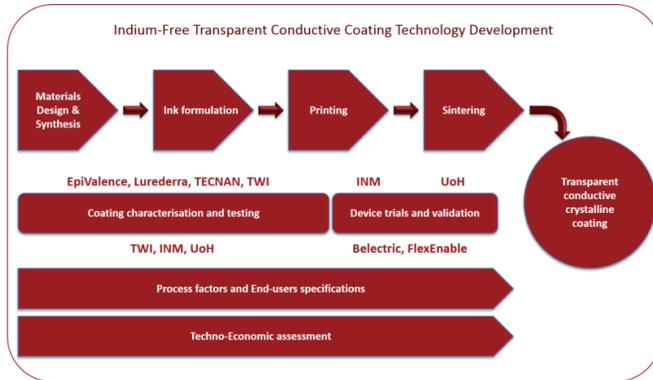


# Indium-free transparent conductive coating oxides for glass and plastic substrates



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INFINITY is a collaborative project funded by the EU's Horizon 2020 Research and Innovation Programme. The three year research programme brings together a complete supply chain of European expertise to provide fully integrated solutions. The consortium consists of two SMEs, four research organisations and two end users who will test and implement the final product.



INFINITY development programme

## Introduction

Thin films made from transparent conducting oxides (TCO) are used in a variety of optoelectronic devices including flat panel displays (LCD), photovoltaic cells and hetero-junction solar cells, smart windows and electronic ink to name a few.

The most commonly used TCO is indium tin oxide (ITO) due to its high electrical conductivity and high light transmission. However, indium is a scarce metal and demands an increasingly high price, often in excess of \$750/kg.



Photovoltaic cells use TCO coatings

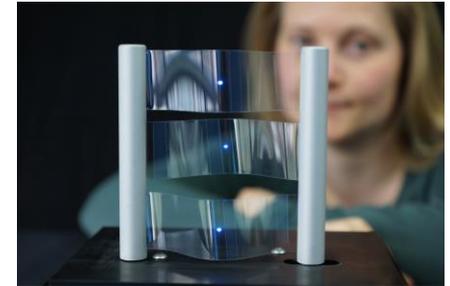
The INFINITY partnership aims to develop a sustainable alternative material without compromising the quality achieved by ITO coatings.

## Approach

Project partners will seek to address a number of key objectives in its approach to find a viable alternative for Transparent Conductive Coatings (TCCs):

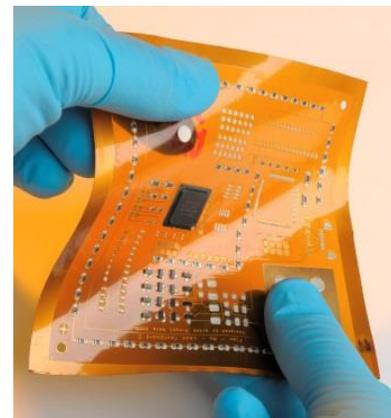
- The primary focus is to develop an inorganic alternative to ITO. Initial development will focus on doped zinc oxide and doped titanium dioxide as two candidate materials of significant interest.

- Novel materials will be based on low cost, vacuum free sol-gel processing technology, taking advantage of recent advances in nanostructured coatings.



Flexible display technology is growing rapidly with great interest in TCO based coatings.

- Printing procedures will enable efficient, direct writing of multi and patterned nano-layers.
- A novel laser-based approach will be used for low temperature sintering of the printed conductive coatings, thereby allowing for not only glass but also plastic substrates to be used.



Printable flexible circuits open up the opportunity for a range of applications in flexible technology. Low temperature, rapid processing techniques allow applications on plastic materials.