

Appreciation of titanium products and the opening up of a new market with the manufacture of a product with an added high value.



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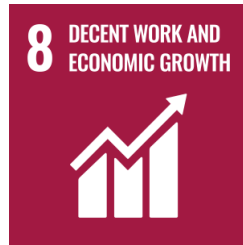
## Technological Offers type

[Technological solutions](#)

## Research and innovation areas

- [Industry, Materials and Circular Economy](#)

## ODS



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## Where?

Building and Environmental Technology

Keywords: | [decontaminant](#)

### Brief description of the technology solution and the added value it provides

A multidisciplinary Research Group from the Technical University of Madrid has developed a new material with excellent mechanical properties and whose coating has a great aesthetical attractive. Additionally, this material could be used as an air (and surrounding water) decontaminant that eliminates principally organic substances and NO<sub>x</sub>, by adsorption and photocatalytic oxidation. In this way, it contributes to the cleaning of the air of our cities.

### Description of the technological base

Introduction of a new constructive and aesthetic element that contributes to the decontamination of gases and surrounding waters.

The material, which is synthesized by electrochemical oxidation of a titanium sheet, keeps its original mechanical properties and therefore, its common use, without the new coating, still remains suitable for architecture and for façade claddings.

Additionally, as an aesthetic element, the variety and diversity of colours offered, adds high value to the material.

As decontaminant removes mainly organic substances and NO<sub>x</sub> by adsorption and photocatalytic oxidation.

***“Material with an added high aesthetical value owing to the panoply of colors that offers, without affecting its mechanical properties”***

### Market demands

#### Architecture

- Titanium market is beginning to replace other materials or metals less resistant, durable, aesthetic or with less thermal resistance, such as aluminium, that meet almost the same construction and coating function.

#### Transport

- Titanium is used in aircraft due to its high mechanical and corrosion resistance, among others features.

#### Environment

- Today, pollution levels in cities reach levels harmful to health. The origin of much of this pollution is vehicle and industry, therefore a new construction material able to reduce and neutralize the pollution negative effect on the environment and help to improve our health, is very useful.

***“The material offers the appreciation of titanium products and the opening up of a new market with the manufacture of a product with a added high value”***

### Competitive advantages

- New cladding material with excellent mechanical properties, relatively high thermal resistance, no inflammable.
- Material with an added high aesthetical value owing to the panoply of colors that can be obtained.
- Water vapor and air permeable and very resistant to frost.
- Good sound isolator; malleable
- NO<sub>x</sub> decontaminant material. In the graphic “Photocatalysis Test” is shown how the concentration of pollution /organic substances decreases over time depending on the type of process.

### Previous references

- Wide experience in recovery of waste coming from different industries, as well as catalysis and materials synthesis.
- Regular collaborators of the business sector.
- The research team has developed already some other patents related to pollutants removal and photocatalysis

## Intellectual property

- Patent applied in Spain: P201531793

## Development stage

- Concept
- R&D
- **Lab Prototype**
- Industrial Prototype
- Production

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