SATT SUD-EST
ACCELERATING TECHNOLOGY TRANSFER

THE INTERFACE BETWEEN COMPANIES AND PUBLIC RESEARCH IN SOUTH EASTERN FRANCE

SUPERFACE
SUPEROLEOPHOBIC AND/OR SUPERHYDROPHOBIC SURFACES

> ### BENEFITS
> DURABILITY
> MECHANICAL RESISTANCE
> NON TOXIC
> VERY HIGH REPELLENCE

> ### KEYWORDS
> SUPEROLEOPHOBIC
> SUPERHYDROPHOBIC
> COATING
> SELF-CLEANING
> NON-STICK
> LOW FLUOR
> WITHOUT FLUOR

> ### IP
> PATENT

Université Nice Sophia Antipolis   CNRS

> ### PARTNERSHIPS
> LICENSE AND/OR
> R&D COLLABORATION
> (POSSIBLE CO-FUNDING)

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BACKGROUND

We have developed new compounds and a coating process for preparation of super-phobic surfaces (water and oil). Superhydrophobic surfaces are highly hydrophobic and extremely difficult to wet (Lotus effect). The contact angle of a water droplet exceeds 150° and the contact angle hysteresis is less than 10°.

These kind of micro-nanostructured surfaces have self-cleaning properties non-stick surfaces, and can have applications for the reduction of gasoline consumption for boats and airplanes, frost reduction formation on airfoils and to protect surfaces from dirt

KEY BENEFITS vs. STATE OF THE ART

Available methods require multiple steps in order to manufacture this type of surfaces; they often use high fluorinated compounds. Moreover, these methods have not solved the main issues including durability, mechanical resistance and toxicity induced by high fluor content. Now with our method:

✓ Supersurfaces are prepared by electrodeposition of conductive polymers on metallic surfaces with very good adhesion
✓ Conductive non fluorinated polymers or polymers with low fluorine content can be used
✓ Versatile technique for development of non-wetting surfaces: variable electrochemical parameters and tuning of chemical monomers structure
✓ Free of fluorinated polymers and polymers with low fluor content
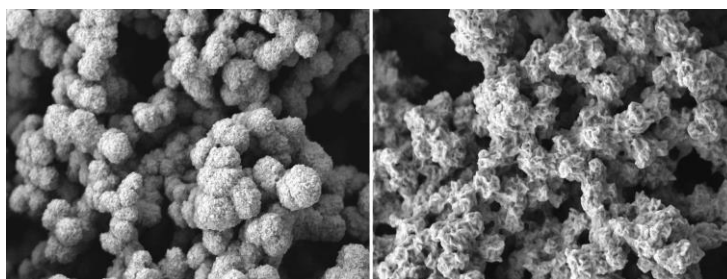
Examples of surface morphologies obtained with the superface coating

DEVELOPMENT STATUS

The super-phobic surfaces have been obtained at laboratory scale; we are currently up-scaling the process

APPLICATIONS

Non-stick surface
Antifouling paint for boats and automobile (reduced fuel consumption)
Aeronautics (reduced fuel consumption and anti-icing coating)
Protection of solar panels
Coating for textile and biomedical
Fingerprint protection

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