SelfClean

9 Partners – 4 Counties – 1 Innovative Project

Have you ever thought how everyday life would be without any bacteria around you?

You wouldn't have to worry about coming in contact with common touched surfaces such as knobs, taps and handles. Imagine being in public places such as hotels, hospitals, schools, universities or using public transportation without having to pay attention to hygiene issues that could result to the spread of viral diseases or epidemics.

The absence of bacteria becomes reality thanks to SELFCLEAN, an innovative project aiming to develop self cleaning-antibacterial coatings of high aesthetics and durability and apply them to common touched surfaces.

So when you visit a public place, be it a hospital, a restaurant or a hotel, you don't have to wash your hands each time you touch a door knob or any kind of handle: these coatings manage to reduce the expansion of viruses and hazardous bacteria when applied on these surfaces.

WHAT is SelfClean?

SELFCLEAN is a successful 2 years project within the EU Seventh Research Frame Programme (FP7) in the area of Research for the benefit of SMEs. 9 partners from 4 different countries were engaged in the development of new self-cleaning, antibacterial coatings of high aesthetics and durability by electroplating technology, targeting to meet the important need of public hygiene in common touched surfaces as knobs and handles.

WHO is involved?

The consortium consists of 9 partners from 4 different countries, including SMEs –Elplatek,Kampakas Metallourgiki, Nadico Technologie GMBH- and RTDs -National Technical University of Athens, SP Technical Research Institute of Sweden, Jönköping University, Instituttet for Produktudviklin, Centre for Research and Technology Hellas. An also partner and end user is the Metropolitan Hospital -Metropolitiko Therapeftirio Perseysygeionomikis Merimnas.

HOW does it work?

The new antibacterial coatings consist of Sn-Ni matrix with doped TiO2 nanoparticles as a reinforcing mean. Doped-TiO2 nanoparticles having the ability to absorb visible light can be activated indoors and thus present enhanced photo catalytic activity. The incorporation of these doped-TiO2 nanoparticles in the Sn-Ni matrix will have as a result the self-cleaning and antibacterial properties.

These kind of coating will be able to operate under indoor light irradiation and can be applied to common touched objects (knobs, taps, handles) reducing the risk of infection's transmission by 50-100%.

Numbers

3,000,000 are infected annually with hospital acquired infections and about 25,000 patients die from this, according to the European Centre for Disease Prevention and Control (ECDC).

15% of these infections spread due to transmission through inanimate objects.

4 countries take part in this project: Greece, Denmark, Sweden and Germany.

50-100% is the percentage of the estimated reduction of infection's transmission when this coating is applied.

1.5 billion euros are the healthcare costs and annual productivity losses caused by hospital acquired infections.

3 SMEs participate in this ambitious project – Elplatek AS, Kampakas Metallourgiki Techniki Emporiki Kai Viomichaniki, Nadico Technologie Gmhb.

Hygiene/antimicrobial issues in public places eg. Hospitals, schools, hotels, public transportation etc. are of crucial importance as inattention could lead to spread of viral diseases or epidemics and consequently to deaths. A typical example is that of hospital acquired infections (HAI). According to The European Centre for Disease Prevention and Control (ECDC) in the EU, about 3,000,000 are infected annually with HAI and about 25,000 patients die from this. Such infections also bring extra healthcare costs and annual productivity losses of at least €1.5 billion. It is estimated that 15% of these infections is due to transmission through inanimate objects. Although sanitization and disinfection of surfaces using chemical liquids as chlorine or alcohol is a common practice to prevent transmission of diseases, many times such procedures are skipped, skimped or in the case of public transportation not practically feasible.

The picture illustrates the difference in colour of the doped powders in comparison to a pure white sample of TiO_2. The white sample to the left sample is P25 Evonic, The light yellow sample in the middle is the (N, S) doped DNT1th powder, and the brownish sample to the right is the (N, Ag) doped DNT1_Ag.).

Project Partners

National Technical University of Athens (Coordinator), Greece

Elplatek A/S, Denmark

Kampakas Metallourgiki Techniki Emporiki Kai Viomichaniki, Greece

SP Technical Research Institute of Sweden, Sweden

Jönköping University, Sweden

Instituttet for Produktudvikling – IPU, Denmark

Centre for Research and Technology Hellas, Greece

Metropolitiko Therapeftirio Perseysygeionomikis Merimnas, Greece

Nadico Technologie Gmhb, Germany

Contact Information

Project Coordinator:
National Technical University of Athens, NTUA

Contact persons:
Assoc. Prof Litsa Pavlatou, NTUA (Scientific)
E-mail: pavlatou@chemeng.ntua.gr

Dr Kostas Chrysagis, NTUA (Project Management)
E-mail: kostasnc@gmail.com
Tel: +30 210 7723110
Fax: +30 210 7723285