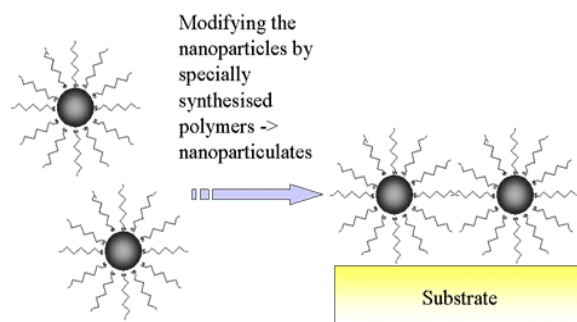
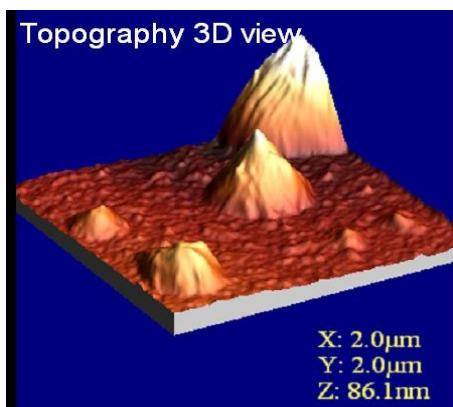


RENACO: Reactive Nanoparticulate Coatings

PROJECT DESCRIPTION

The purpose of the project has been to prepare and study functional films formed on silica and metal surfaces based on the combination of the tailored supramolecular design of metal/organic core/shell nanoparticles. The idea is to attach nanoparticles with special, synthetic polymers to the surface of interest and create reactive nanoparticulate coatings.

In the project, the expertise in nanoparticles (TKK, Finland) has been combined to the knowledge of polymer chemistry (HY, Finland) for the preparation of a successful coating. The two different newly synthesized block co-polymers have been found to bind Ag nanoparticles on the surface successfully. To find out the detailed chemistry of their bonding to the surface as well as the functionality the expertise in surface science (UPB, University of Paderborn, Germany) and interfacial chemistry (CENIM, CSIC, Spain) have been needed. Results show that with these block co-polymers attach also stainless steel surface by covalent bonding. The business expertise has been provided by Outotec and Rautaruukki Oyj. Being this research at the edge of the technologies, new characterization modes for the nanoparticulate coatings have appeared along the project; Nanotec Research & Development Department has for example tested surfaces with their new equipments.



PARTNERS

Project coordinator: Helsinki University of Technology, TKK-Finland

Project partners: University of Paderborn, UPB- **Germany**
National Centre for Metallurgical Research, CENIM-**Spain**
University of Helsinki, HY-**Finland**
Outotec Oyj, Outotec, **Finland**
Rautaruukki Oyj, Rautaruukki, **Finland**
Nanotec Electrónica SL, Nanotec, **Spain**



SUCCESS STORIES

PROJECT DURATION AND TOTAL PROJECT COST:

Duration: 01/10/2006 – 31/12/2008

Cost: 735.000 Euro

CONTACT:

Coordinator: Kyösti Kontturi

E-mail: kyosti.kontturi@tkk.fi

Tel: +358 9 451 2570