

# CLEANROOM TECHNOLOGY

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BioClean

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## NITRITEX ENTERS THE LAUNDRY SERVICE MARKET

- The gloves are on for new hypoallergenic latex
- Easy clean coatings cut bugs in hospital trials
- Choosing floors without flaws



[www.cleanroom-technology.co.uk](http://www.cleanroom-technology.co.uk)

**N**anopool is a nano-scale liquid glass coating that can be applied to a range of surfaces. It originated from the architectural industry where it was developed for anti-graffiti applications and is now used in a variety of industries, including food processing, catering, automotive and agriculture. It is produced by the Germany based company, Nanopool, using SiO<sub>2</sub> ultra thin glass layering technology.

It made its first in-roads in the health sector as a result of the launch of Smart Solutions for Healthcare Associated Infections (SHCAI), a UK programme that aims to bring forward new technologies with the potential to reduce HCAI rates within the NHS. The programme was run by TrusTECH, The North West of England NHS Innovations Hub, on behalf of the Department of Health's HCAI Technology Innovation Programme, and supported by the NHS National Innovation Centre.

Following a national call for innovative products and technologies from a range of industries, nine products were selected for further evaluation within an NHS hospital and Nanopool was among them.

The basis for its use is that the application of the Nanopool coating to a surface results in a super-hydrophobic layer that resists the formation of dirt and makes surfaces easier to clean, and the ion-exchange mechanism in Nanopool

# Protective coatings

A coating, described effectively as liquid glass, is being tested in a variety of applications for its easy clean and germ free properties. **Ian McClelland**, project manager, Nanopool, describes its progress in new hospital trials in the UK and Germany

prevents bacterial growth.

The aim of the product evaluation was to substantiate these claims independently in a clinical setting.

The trial was undertaken in Southport and Formby District General Hospital with Martin Kiernan, the Nurse Consultant for the Prevention and Control of Infection acting as the principal investigator.

The objectives were to:

- Apply the Nanopool coatings to a range of surfaces within the clinical areas of a hospital.
- Measure and compare the levels of ATP as a proxy for biological contamination on similar coated and uncoated surfaces.
- Obtain user feedback on the usability and impact of Nanopool from clinical, infection control and facilities management personnel.

Prior to the application of the Nanopool coating all test surfaces were sampled for bio-burden and bacteria (Adenosine triphosphate (ATP), total viable count (TVC), *Staphylococcus aureus* using ATP bioluminescence swabs and conventional surface swabs. The test surfaces were cleaned to the specification laid down by Nanopool and re-tested for bio-burden and bacteria before the Nanopool coating solutions were applied to the test surfaces in the ward that had been selected for surface coating, using the method outlined by the company.

### Three-month study

During the 12-week follow-up period after Nanopool application, the test sites were subjected to normal clinical use and

**Studies have shown that some of these surfaces, once coated with Nanopool, saw more than a 50% reduction of bacteria**

cleaning procedures by patients, clinical staff, and cleaning staff, who had not been informed (blinded) about the treatment allocated to each test surface.

All of the test surfaces were sampled for ATP at weekly intervals at an unannounced time during the 12-week intervention period. Sampling using conventional microbiological swabs was, however, only performed at weekly intervals on selected test surfaces.

At the end of the 12-week evaluation period, the opinion of each member of the cleaning staff on the ease of cleaning of the test surfaces was solicited and recorded on User Feasibility Questionnaires.

The results showed that during the baseline period there was no significant difference between ATP scores or TVC scores for surfaces that would subsequently be coated with Nanopool or left uncoated. This indicates that both surface groups were exposed to similar levels of use, general contamination and cleaning effectiveness.

During the baseline and intervention period the number of *S.aureus* detected were below the lower detection limit for both Nanopool-coated and uncoated surfaces and no further analysis was undertaken on this data. The majority of TVC scores were also low and close to the lower detection limit. This indicates that the study was undertaken in clinical areas with low levels of microbial contamination.

During the intervention period there was also a statistically significant 25% reduction in ATP scores for the Nanopool-coated surfaces compared with the uncoated surfaces when unadjusted for surface type ( $p < 0.01$ ) and adjusted for surface type ( $p < 0.001$ ). There was no significant difference in TVC scores between



