Small study looking at bacterial differences between ceramic tiles and Notile GRP panels with BioCote® silver antimicrobial protection

Introduction

The problems of cross-contamination and infection within healthcare environments have received a great deal of coverage in the media over the past few years. Numerous initiatives have been launched to try and combat this problem, with the government spending a vast amount of money to try and improve the situation; this includes assistance from industry to provide beneficial and innovative technology. BioCote Ltd is one such company, working with a number of manufacturers to incorporate silver, a natural antimicrobial, into their products at the time of manufacture to provide antimicrobial surfaces.

However, it is clear that it is not just the healthcare environment that can benefit from this technology, the food manufacture and catering industry can also benefit. This industry is very aware of the problems of infecting a large number of people with food poisoning outbreaks, therefore systems have been implemented to help minimise the risks. Hazard Analysis Critical Control Points (HACCP) is one such measure. Products containing BioCote® can assist with HACCP regulations offering the food industry an additional benefit in the continued need to control food poisoning in both food manufacture and preparation.

Aim

The aim of this study is to look at the benefit of Notile a GRP tiling panel system containing BioCote® compared to conventional ceramic tiles and grouting, in a working kitchen preparing food for general public to consumption.

The study aims to show a reduced number of bacteria on the Notile product compared to that of the standard tiling system.

Outline of testing procedures

The Red Hall in Bury is a small hotel and restaurant and was used to carry out the trial. The working kitchen contained both ceramic tiles and Notile GRP panels.

An equal number of locations were chosen in both finishes and were swabbed using the procedure outlined below:

Swabbing: Travel swabs using a neutralising buffer were used. An area of 5cm sq was tested in each location, the swab was immersed in the buffer solution to moisten the tip; the swab was then taken across the surface under test rotating the tip as this was done. The swab was then returned to the buffer solution for transportation to the laboratory.

Sample Analysis: The swabs are then analysed for Total Viable Count (TVC), using the following method:

The swabs were analysed on Plate Count Agar (PCA) using a pour plate technique in an aerobic atmosphere at 30ºC for 48 hours. The colonies were then counted and reported in colony forming units (CFU). These were analysed at an independent UKAS approved laboratory.

Results

The table below shows the results for the entire sites swabbed in CFU.

Location	Notile with BioCote	Ceramic Tile
1	5	5
2	5	10
3	5	30
4	5	70
5	5	940
6	10	5
7	10	5
8	5	20
9	5	5
10	40	5
11	5	5
12	10	380
13	10	5
14	5	5
15	5	10
16	5	5
17	40	10
18	5	70
19	20	5
20	5	5
21	30	30
22	5	5
23	5	10
24	5	5
25	5	5
26	5	150
27	90	5
28	5	10
29	5	5

	Notile with BioCote	Ceramic Tile
Total Count	360	1820
Average	12.41	62.76
% reduction	**80.22**	

Discussion

The study although small, demonstrates the benefit of Notile GRP panels containing BioCote® within a working environment. The Notile GRP panels showed a reduction of over 80% on their surface compared to traditional ceramic tiles.

The reduction of over 80% in bacterial numbers and the added benefit of no grouting and easy cleaning that the Notile GRP panels offer, shows the introduction of this product within a food preparation or manufacturing environment appears a positive move providing an added level of HACCP.