Boehringer Ingelheim Manufacturing Site, Bracknell, Berks
Installation of Dycem Polymeric Flooring

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Boehringer-Ingelheim, Bracknell has a rigorous environmental monitoring programme in place, which provides both quantitive and qualitative data with respect to the specific manufacturing facility. The warehouse interface corridor (connecting the warehouse to the initial 'entry' corridor to the manufacturing facility) is currently an unclassified area. It has been established that foot and wheel-borne contamination are the two major sources of potential cross contamination.

The aim of this study was to investigate the level of cross contamination entering the production corridors from the warehouse, and how the installation of two polymeric mats might reduce this level of cross contamination.

In the past, polymeric flooring has been used in this area and others, but was proven to be unsuccessful due to the apparent inability of the flooring to withstand constant vehicular use, especially in this area. The polymeric flooring now on offer from Dycem has been improved with a new design in outer margin joins which are expected to withstand the 'braking' and 'turning' manoeuvres of the warehouse vehicles.

The polymeric material functions by electrostatically attracting air borne particles, and by a unique mechanism traps any micro-organisms and dirt passing over it. These trapped particles are packed into the mat every time it is passed over, either by foot or by vehicle. This will subsequently be removed when cleaned, ensuring its continual effectiveness.

Constant 'steam cleaning' is not advised as this causes the material to crack and also lose its electrostatic properties, however, steam cleaning on a six monthly basis is recommended to remove embedded particles and free up the charged surface.

A regime of daily cleaning and disinfection has been trained to warehouse personnel and it is essential that such training is given to others if the polymeric flooring is to be used in other areas, in order to maintain the material's correct function.

Objective

To assess how the polymeic flooring will affect cross contamination from the warehouse to the production facility, by monitoring the warehouse/production interface corridor.

Method

The warehouse interface was split into 4 areas, which in total consisted of 17 floor contact plate sites:

Area 1 - Immediately before polymeric mat (site 1-6)
Area 2 - Between polymeric mat 1 and 2 (site 7-11)
Area 3 - Immediately after polymeric mat 2 (site 12-16)
Area 4 - After polymeric mat 2, before manufacturing facility (site 17-19)

These positions were chosen to monitor the movement of the local flora from the warehouse to the manufacturing facility. The contact plates used for floor surface monitoring, contained D/E neutralising agar, and were carried out using the method described in the relevant standard operating procedure (SOP) at the positions specified in the floor plans. Plates were incubated for 3 days at 20-25 degrees celsius and then 2 days at 30-35 degress celsius, before the counts per plate were observed. The sites were monitored for five consecutive days.

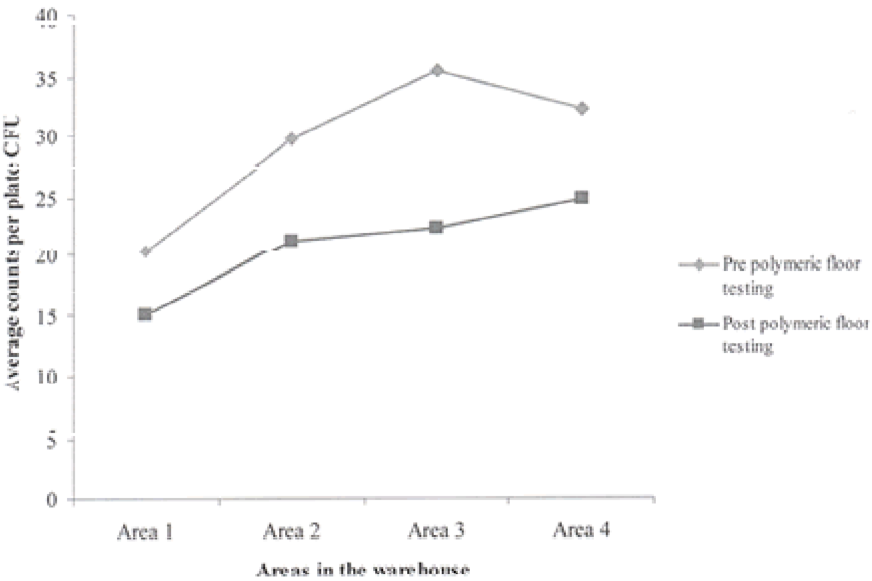
The sites chosen were monitored 'pre' polymeric mat installation (test 1) and 'post' polymeric mat installation (test 2). This allowed the level of cross contamination to be examined and for the effectiveness of the polymeric flooring to be assessed.

Results

	area one	area two	area three	area four
pre polymeric floor testing	20.3	29.7	35.5	32.3
post polymeric floor testing	15.1	21.2	22.3	24.8

The average counts per CFU for each area were calculated and graphed.

Graph 2: Average counts for each area in the warehouse pre and post polymeric floor testing



Conclusion

The results showed that there was a difference in the level of contamination when the polymeric mat was installed. **The presence of the polymeric mat reduced the level of cross contamination by 28.6% after the first polymeric mat (area 2) and 37.1% after the second polymeric mat (area 3).**

A total of 65.7% reduction in cross contamination.

The study showed that the control of cross contamination from the warehouse area was greatly increased by the installation of the Dycem polymeric flooring. The level of contamination measured from mat to mat was relatively constant. A slight increase in contamination level was observed in area 4 (samples taken after the last Dycem mat position) but which remained less than contamination levels seen before polymeric mat installation.

Although the organisms found on the contact plates were not identified to species level the morphology of the organisms were observed.

The flora commonly found were Staph spp, Bacillus spp and Mould spp.

These types of organisms were not unusual and were expected to be predominant within a warehouse environment.