

75% Reduction in airborne contaminants by switching to Dycem Polymeric Floor Coverings

A major medical device manufacturer has recently revealed significant airborne reduction counts. The facility based in the USA achieved this result by evaluating their contamination control methods at floor level. The facility was utilizing several hundred cases of tack mats per annum. They found that by switching to Polymeric floor coverings they witnessed a reduction in costs and an improvement in contamination control performance. They measured a 75% reduction in the level of airborne contaminants.

Background:

A major Medical Device Manufacturer operating in Hybrid Manufacturing areas has evaluated the polymeric floor coverings in comparison to the tack mats that were previously being used. Various consumables are used in the facilities gowning room including bouffants, face masks, garments, ESD shoes, and gloves. Blue tack mats were used to capture dirt from operatives "street shoes" as they entered the gowning room. The building where tests were conducted spent \$24,000 on tack mats per annum. This building disposed of approximately one ton (2028 lbs) of used plastic peel off mat sheets in the trash per annum.



One blue tack mat being used in the changing area.

An Opportunity for Improvement was Identified:

A polymeric floor covering was identified as an alternative to tack mats. A key feature of the polymeric floor covering is its ability to embed particulate within its cellular structure, rather than to bind it with surface adhesive as is done with the tear off tack mat. The polymeric flooring is cleaned with a damp mop and detergent and then squeegee dried.

The lifetime for the Dycem flooring material is 3-4 years. During that period building 8 would spend at least \$72,000 on tack mats.

The benefits of the Dycem material were anticipated to be:

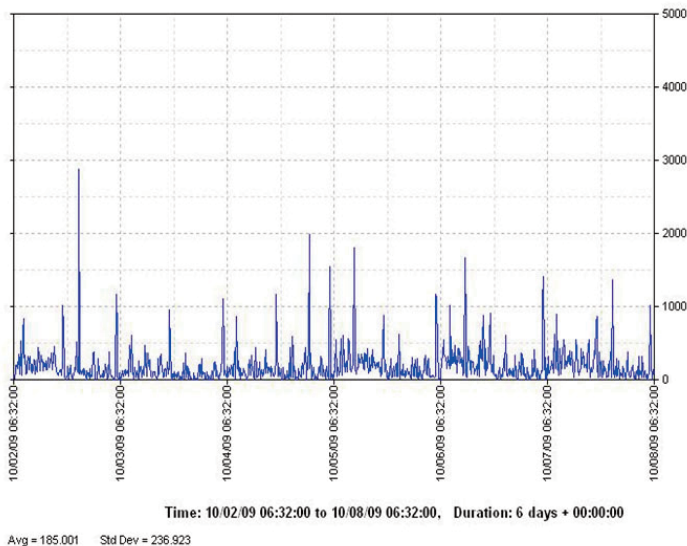
- Less particles in the gowning room
- Improved yields
- Reduced product rejects
- Reduced expense (in that no peel-off mats will need to be purchased, stored and peeled.)
- A greener solution (as plastic peel-off mat sheets will not need to be disposed of in the trash)
- Reduced cleaning costs due to no-adhesive carry over into the critical production areas.

Method of Product Evaluation:

A Project Plan was developed and presented to Hybrid Manufacturing Management. Financial feasibility was analyzed for several areas of Dycem. This spend is the equivalent of 20 months worth of Blue tack mats which would cover a much smaller surface area and provide less performance. A financial benefit is then forecasted based on the life-span of polymeric floor coverings.

The management of Hybrid Manufacturing approved the project plan. In order to measure performance airborne particle counters were added to the gowning room on the 24/08/09. Particle data measurements were collected over a 12 week period with Blue tack mats in use. Dycem material was installed on 24/11/09 and Particle data measurements were taken over a further 12 weeks. The results from one weeks worth of tests are shown in the graphs below.

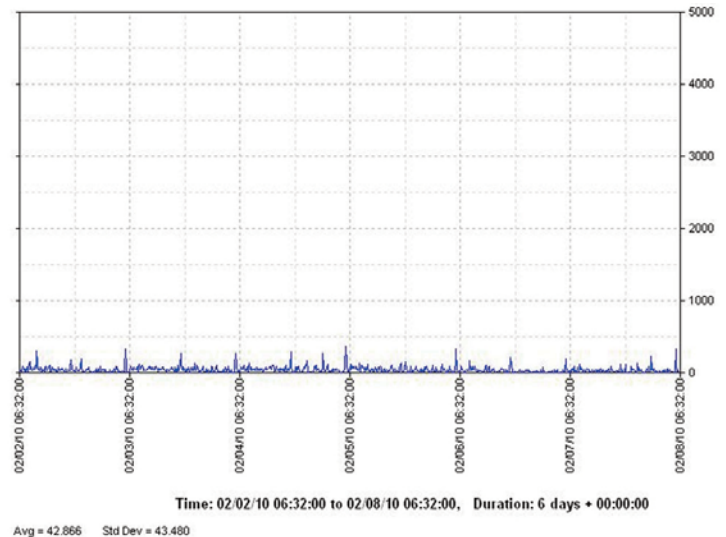
Particle Data:



The graph above shows airborne particle counts in 'building 8' gowning room when the tacky mats were in place. The spikes in the graph reflect when the tacky mats are being peeled. Note the average airborne count during this week was 185, 0.5 micron and larger particles per cubic foot of air.

Results:

- Airborne particles in the gowning room are reduced by 75% as a result of using polymeric floor coverings.
- Particle shedding levels are reduced as tack mats are not being used and no peeling is taking place.



The graph above shows airborne particle counts in building 8 gowning room after the Polymeric Floor Covering was in place (February 2010) Note the average airborne count during this week was 43, 0.5 micron and larger particles per cubic foot of air.



Changing area covered with Dycem Polymeric Floor Coverings



Blue tack mats no longer required

Summary:

- The test results show that the gowning area is cleaner with a 75% airborne particles reduction by using Polymeric Floor Coverings.
- Cost savings were evident due to in the 3-4 year life of the Polymeric Floor Coverings \$80,000 will have been saved over purchasing Blue Tack Mats.
- Time Saving - Custodians report a time saving of 2 hours per day due to not having to peel and dispose of tack mats.
- A greener solution - there is significantly less plastic going into the trash - more than 5 tons of plastic over the next five years will not be going into landfill

Recommendations:

- Given the level of particle reduction and cost savings it is recommended that any facility operating in the Life Sciences field as well as food manufacturing evaluate use of polymeric floor coverings.

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