

Industry Addresses The Environmental Issue

A major semiconductor manufacturer in the Southwest U.S. was interested in reducing their disposable waste, both for environmental and cost concerns.

After analysing the wide variety of disposable /consumable products which are used in their large, busy Cleanrooms (Class 10 to Class 1000) it was determined that adhesive peel-off mats were the obvious target.

Each month the facility disposed of thousands of peeled adhesive mats – 8” balls of dirty adhesive and film, that cannot be recycled and which consequently fill dumpsters and landfill areas. The cost to dispose of the adhesive peel-off mats including all related packaging was. 39 cents per peel.

In one building alone, the company was spending \$69,000 per year in material purchase cost and \$63,000 in disposal costs for the adhesive peel off mats.

Dycem was invited to present the permanent high tack washable contamination control flooring (Clean-Zone) to the environmental committee as an alternative for stopping foot and wheel borne contamination from reaching the cleanrooms.

The committee consisted of purchasing, safety, engineering, cleaning and maintenance, quality control, facility management, corporate management and the contamination Control Manager.

Dycem’s Technical Design Specialist and National Sales Manager toured the facility and discussed personnel and cart traffic levels, cleaning schedules and particle count targets. Dycem then offered a proposal, which included covering the main traffic areas of four gowning rooms with large areas of high tack Clean-Zone flooring and placing Dycem gross contamination control mats in the hallways prior to the gowning areas. These areas of contamination control coverage were more than 10 times the square foot coverage offered by the adhesive mats. The Clean-Zone flooring was designed using two colours, allowing for visual confirmation of a “dirty side” / “clean side” separated by benches. The Clean-Zone was to be installed with the newest, easy in, and easy out, Sigaway self-adhesive installation panels.

The key questions raised by the committee regarded effectiveness, the cleaning process and cost.

The product's effectiveness was easily established as another corporate facility had successfully used Dycem flooring for many years. In addition, a number of published independent studies have proven Dycem as more effective in removing and holding foot borne contamination and finally the entire project had a Two Year, 100% Replacement Warranty.

The maintenance group was already cleaning the gowning room floors once each shift. With the large areas of Clean-Zone coverage able to handle the heavy traffic of a shift change, it was determined that this schedule of one cleaning each shift would be sufficient.

The Dycem Clean-Zone flooring could be cleaned with the facilities approved detergent, a sponge mop and floor squeegee. The maintenance crew, after experimenting, decided to use a steam cleaning vacuum unit on the Dycem Clean-Zone and the surrounding flooring. This allowed continuous use of the room with no shutdown.

The total installed cost of Clean-Zone flooring with self-adhesive panels and two Hepa filtered cleaning machines was \$54,000.

With all concerns addressed, the project was given an approval and a few weeks later the Clean-Zone was installed in all four gowning rooms on a Saturday afternoon.

Short-term results: (after 3 months)

1. An immediate and substantial particle count reduction at all Cleanroom entrances.
2. The elimination of virtually all-disposable mats from the facility.
3. The Dycem Clean-Zone and surrounding floors are being maintained by the regular cleaning crew. The person previously charged with peeling, disposing and replacing the adhesive mats was put in an income generating position.
4. Due to a capital expenditure freeze, payment for the entire project was made from the monthly adhesive peel off mat budget. Payment for the project was completed in 5 months.
5. First year material savings were \$15,000.
6. First year disposable savings were \$63,000.

Long-term results: (After 4 years)

1. Particle counts have remained at the lower levels.
2. Material savings after four years - \$222,000.
3. Disposal savings after four years -\$252,000.

4. The Dycem Clean-Zone flooring is projected for replacement after 5 years, which is the average life of the Clean-Zone.
5. Environmental savings – warehouse space, manufacturing materials and energy, trucking fuel, landfill space.
6. The Dycem Clean-Zone flooring will be recycled into less critical uses when it is removed.

Summary

Simply put, the Dycem flooring has proven it works better, costs less, is easier to maintain and offers a positive environmental impact.