

CRITICAL CONTAMINATION CONTROL COMPARISON





Oycem



80% **OF CONTAMINATION ENTERING YOUR CRITICAL ENVIRONMENT DOES SO**

WHY CONTAMINATION CONTROL IS **IMPORTANT** FOR YOUR BUSINESS

From pharmaceutical laboratories to automotive manufacturing, hospitals to food processing units, optical clinics, neutraceuticals to IT research centres and many more, there's a growing problem in critical environments. Contamination and cross contamination from foot, wheel and airborne microbial particles are

financial consequences, product recalls, FDA warning letters or even company shutdown.

THE VISIBLE AND **INVISIBLE** RISK

Contamination control is a major and growing concern in cleanrooms, critical areas and controlled environments.

Cleanrooms are markedly cleaner than a hospital operating room and require an extremely stringent approach to controlling possible contamination and ensuring an environment is free from bacteria, viruses or other pathogens. Particulate contaminants are known to adversely affect quality, product yield, operational effectiveness and profitability. Therefore protecting these areas is vital.

Whether the environment you operate is industrial, controlled, critical or sterile, Dycem enables all organisations to reduce particle counts by up to 99.9%. The illustration below identifies the types of particulates present in these environments and how Dycem uses these groups to assess and address your facility's decontamination needs.

INDUSTRIAL (SUPERCOARSE) 100 micron +

Environments include heavy wheeled pallet trucks, trolleys and forkifts.

Typical locations include: Warehouses, Factories, Goods in/out

CONTROLLED (COARSE) 10 - 100 micron

Environments include heavy wheeled forklifts, medium to light wheeled pallet trucks, trollevs and pedestrian traffic.

Typical locations include: Transfer Areas, Loading Bays, Granulation Bays

CRITICAL (FINE) 0.5 - 10 micron

Environments include light weight trolleys and pedestrian traffic.

Typical locations include: Changing Rooms, Air Showers, Gowning Areas

STERILE (ULTRAFINE) 0.5 micron <

Environments include pedestrian traffic.

Typical locations include:

Pedestrian Airlocks, Isolation Chambers, Aseptic Processing

CLEANZONE TECHNOLOGY - STOPS **CONTAMINATION** ITS TRACKS

Dycem's unique 5 way action is the only effective way to minimise foot, wheel and airborne contamination; Size, Silver, Suppleness, Smoothness and Service define the complete CleanZone technology package.







SIZE

It is well accepted that to effectively remove contamination from feet and wheels, it takes a total of six footfalls or three full wheel rotations. Only Dycem delivers this.

SILVER

Silver ion-based antimicrobial products from BioMaster are being used in Dycem's products and have been proven to be effective on more than 50 different organisms including MRSA.

Our unique 5 way action stops **99.9%** of contaminants

MRSA **Dycem inhibits the** growth of MRSA by

over a 3 hour period

E. Coli **Dycem inhibits the** growth of E. coli by over a 3 hour period

Dycem

SIZE MATTERS

CHOOSING THE RIGHT SIZE

It is important to choose the right sized Zone, as size optimises both performance and life cycle.

There are several factors to consider including:

- Level of contaminants.
- Number of operators and carts.
- How often wet cleaning takes place.
- Physical size available.

For effective decontamination, at least 3 meters of Dycem is recommended to provide a sufficient surface area to allow for six foot falls (three of each foot) or three full wheel rotations before reaching critical areas.

Using peel off mats as an example below, illustrates that using an inferior solution with a small surface area can endanger your critical environments.

FACTS

Dycem creates an unavoidable area to create a 99.9% contamination control solution.

IT'S ABOUT THE RIGHT LENGTH AND WIDTH

With Dycem, it is about the right length and width, so you are able to get enough foot steps and wheel rotations in order to fully decontaminate.

Having insufficiently sized methods of contamination control allows easy

avoidance and increases the risk to your critical environments.

If the area is small and/or restrictive and installing a small area of Dycem is the only option, Dycem is still an effective method of contamination control. Overstriking in areas such as gowning rooms (where space is restricted), Dycem is still effective and will offer up to 99.9% contamination control.

Dycem has a Replacement Program option that can ensure 99.9% of contamination control is maintained.





GANGED PEEL-OFF MATS

20%

CONTAMINATION ENTERING

CRITICAL ENVIRONMENT



DYCEM **1%** CONTAMINATION ENTERING CRITICAL ENVIRONMENT



FACTS

With smaller areas subjected to concentrated traffic and possibly infrequent cleaning, a more frequent replacement of Dycem may be required.

Length for normal traffic loads



After 4 footfalls or 2 wheel rotations **50%** EFFECTIVE

Length for heavy traffic loads •••••

After 2 footfalls or 1 wheel rotation **25%** EFFECTIVE

FACTS

With every footstep and wheel rotation, contamination gradually builds up in layers. Multiple steps on Dycem flooring are required to fully decontaminate your feet and wheels. Peel off mats do not have the surface area or ability to allow for multiple footsteps/wheel rotations to guarantee effective decontamination from the built up layers of contamination.



ONLY 27% of foot and wheel-borne contamination is prevented by peel-off mats

PEEL-OFF MATS

It is commonly thought that using disposable, adhesive peel-off mats is the answer to contamination control. However, tests from GlaxoSmithKline show that peel-off mats are only 27% effective in preventing foot and wheelborne contamination.

There are many manufacturers of peel-off mats which result in variable quality. The key concern is the thickness

PEEL-OFF MATS THE RISKS

- Peel-off mats are not guaranteed to stay adhered to the sub-floor.
- There are risks of water ingress and microbial growth underneath.
- Corners peeling from the sub-floor can cause tripping/Health and Safety issues.
- Peel-off mats are prone to causing static charges generating up to 5,000 volts per peel.
- Peel-off mats can tear overshoes, exposing unclean surfaces.
- Adhesive from peel-off mats can be tracked into clean room environments on feet.
- Wheeled traffic can be difficult to move over the peel-off mats.
- Peels-off mats, in size, are much too small to effectively decontaminate.
- More often than not, multiple sheets are peeled, wasting money and time.

and hardness of the acrylic adhesive applied during the coating process. If too thick and soft the adhesive transfers off the mat as people walk on it. Some peel-off mat companies even offer adhesive residue remover as they acknowledge the problem.



PEELING MATS CAUSE PARTICLE SHEDDING AND RECONTAMINATION

A study commissioned by a peel-off mat manufacturer highlighted the problem of particle shedding during the rip up process of peel-off mats. The tests revealed that on average, 215,000 particles were released during the rip-up process – releasing hundreds of thousands of particles back into the atmosphere. 215,000 PARTICLES ARE RELEASED INTO THE ATMOSPHERE DURING THE RIP UP PROCESS



PEEL-OFF RISKS WITH WHEELED TRAFFIC

It is impossible to decontaminate medium to heavy wheeled traffic using a peel-off mat. This is due to:

- Peel-off mats being prone to wrapping around wheels of trolleys and carts making it impossible to control cross contamination.
- Peel-off mats are not efficient in dirtier and heavy traffic environments as they are prone to heavy saturation very quickly.
- Peel-off mats cannot allow the three full wheel rotations necessary to decontaminate wheeled traffic.
- Adhesive from peel-off mats can be transferred onto wheels and tracked into critical environments.









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PEEL-OFF MATS

The small surface area of a peel-off mat makes **full** wheel-borne decontamination **almost impossible.**

DYCEM

Dycem's larger surface area and polymeric construction allows for **full** wheel-borne decontamination of **99.9% possible.**

PAYING A HIGH PRICE FOR LOW COST ALTERNATIVES

The initial cost of peel-off mats may seem low and advantageous when meeting budgets, however peel-off mats actually cost significantly more than Dycem.

When comparing the two systems, Dycem not only costs less over the longevity of both products, but most critically, it vastly out performs in terms of size, quality and retention of contamination, reducing the risk of particles entering your critical environment.

Use the formulae below to see how much you spend on using peel-off mats, and how much you can save by switching to Dycem over a 3-year life cycle:

PEEL-OFF MAT COST

Peel-off mat cost x 10 (to create the size of Dycem) + peels per shift x shifts per day x days operation per year x 2 (Redisposal) Costs.

DYCEM COST

0 peels required x 2 shifts per day x 7 days per week (12 month replacement contract per pricing matrix).

Please contact us with your peel-off mat costs and we will be happy to show you how much you could save with Dycem.

ENVIRONMENTAL IMPACT

The **hazardous/contaminated waste**, coupled with disposal costs created with peel-off mats are not to be ignored. With the 20cm ball of waste created when peeling off a mat layer (generating enough waste to fill multiple dumpsters per year), and also being classed as secondary waste, Peel-off mats not only create an abundance of unnecessary waste but are very expensive to dispose of properly at the end its very short working life.

Dycem is easily integrated into your SOP and can be cleaned as part of your regular floor cleaning schedule. Dycem does not impact on your daily waste volumes and can either be disposed of normally in regular waste or recycled into less critical applications (after its minimum 3 year working life).

SINGULAR PEEL-OFF MAT

73% contamination entering critical environment

100% 73% 100% Contamination Risk Risk Risk Risk



The average 1.2M x 0.6M (4' x 2') sized peel-off mats are too small. This coupled with the usual placement of only one mat outside critical areas can be very dangerous!

A singular peel-off mat will pose the most risk, with **73%** of contamination entering your critical area, this could be **100%**, as the likelihood of overstepping a singular mat is very high!



If your peel-off use and rate of peeling is very low there is **100% risk** to your critical environment due to high particle build up and peel-off mats inability to withstand overstriking.



GANGED PEEL-OFF MAT

20% CONTAMINATION ENTERING CRITICAL ENVIRONMENT DYCEM

<0.01% CONTAMINATION ENTERING CRITICAL ENVIRONMENT





GANGING MATS TOGETHER

In order to get a near comparable performance to Dycem, at least eight peel-off mats need to be ganged together and peeled regularly.

Ganging peel-off mats together does address the size issue. However the practical issues, labour and material costs involved in peeling eight mats several times each shift make this an expensive option.

The return on investment (ROI) on comparable performance is about one year, but the far greater benefit comes from lower particle counts, leading to increased product yields. 10 Peel-off mats ganged together means there is 20% risk of contamination entering a critical area (if peeled twice per shift). Source: Mcon.

In addition, the corners of the peel-off mats can often rise causing contamination to reside between the mats. When peel-off mats are ganged together they harbour contaminants in the gaps between them. **Dycem is seamless**, thus avoiding this contaminant trap.



OVERSTRIKING

Extensive laboratory tests and practical experience have established that Dycem's unique surface chemistry consistently removes more particulate than any other method of contamination control, both when Dycem is clean and partially contaminated. The information below are results from **'Examination of air** and surface particulate levels from cleanroom mats and polymeric flooring', Dr Tim Sandle. These results illustrate the performance of Dycem compared to other peel-off mats when overstriking.

TEST MATS	PARTICLE REPLACEMENT BACK ONTO SHOE FROM PEEL-OFF MAT
PEEL-OFF MAT 1	9.6% INCREASE
PEEL-OFF MAT 2	73.3% INCREASE
PEEL-OFF MAT 3	85.5% INCREASE
PEEL-OFF MAT 4	81.3% INCREASE
PEEL-OFF MAT 5	81.9% INCREASE
PEEL-OFF MAT 6	108.8% INCREASE

DYCEM POLYMERIC

90.3% PARTICLE REMOVAL FROM SHOE ONTO DYCEM

PEEL-OFF MATS' UNRELIABILITY WHEN OVERSTRIKING

- The performance of peel-off mats is greatly reduced with overstrikes. If used correctly i.e. each person stops and takes at least three steps with each foot, overstriking will occur.
- To achieve the peel-off mat's optimum 27% effectiveness they need to be peeled after every use.
- In addition, particles readily transfer back onto footwear, increasing the risk of contamination.
- Peel-off mats as a singular are too small. With every step, contamination builds up in layers on feet. This build up of contamination on feet will not be effectively removed after one or a couple of steps on the area.

When **overstriking** on Dycem a **further 90.3%** of particles are removed from overshoes, compared with an **increase of up to 381.9%** being deposited back onto the shoes using peel-off mats. **Source: Dr Tim Sandle**



PEEL-OFF MAT

DYCEM





REDUCING THE NEED FOR **SHOE COVERS**

Shoe covers are commonly used in cleanrooms as a way to control foot-borne contamination. Though few who wear them give much thought to these critical environment consumables.

Many controlled environments might discover that they are using a shoe cover that is not only inappropriate for their environment, but is more expensive than a better suited product.

COST

The cost of shoe covers can vary greatly from high to low end products, both types with differing USP's and an organisation's aspiration for quality will greatly impact the cost on budgets.

QUALITY

Many manufacturers and/or distributors claim good traction, durability, waterproof capabilities and most of all contamination avoidance when selling shoe covers. However, the materials the shoes are produced from (Chlorinated polyethylene, polypropylene, PVC) all have inherent weaknesses that could cause risk to your critical environment.

RISK

Potential risks vary with shoe covers, depending on the materials produced. These risks include ripping, slipping of feet and inability to apply to larger feet. Polypropylene (PP) presents several problems in a controlled environment setting. PP is a non-woven material, which means that it can and will shed particles.

Furthermore, the highest risk is not necessarily through the usage of the shoes, but applying them to feet. Using dirty/unwashed hands bypasses the purpose of having shoe covers and adds contamination to the underside even before entering critical environments.

IS THERE A NEED?

Shoe covers are amongst a vast number of commonly used contamination control solutions, but when considering costs, usage and disposal, Dycem can prove to be an effective, high quality and lower cost alternative in the long run.

SHOE COVER COST FORMULA

Shoe cover x 2 (= 1 person) x individuals per shift x shifts per day x days operation per year. What also should be considered is time lost putting on and removing overshoes, and the amount of entry and exits per person per day in and out of the environment.

DYCEM COST

0 change over required x 2 shifts per day x 7 days per week (12 monthly replacement contract per pricing matrix)







Dycem[°]

PERFORMANCE COMPARISONS

Throughout this comparison brochure, we have discussed how different solutions vary in quality, price and performance when compared to Dycem.

Below is a simple and illustrative comparative breakdown between the main solutions implemented and how they compare.

Only Dycem, through scientific, independent studies can guarantee 99.9% foot and wheel-borne decontamination, and 75% airborne decontamination.







COMPARISONS	Dycem	Using Nothing	Peel-Off Mats	Foot Baths
Is 99.9% effective in inhibiting foot and wheel-borne contamination	1	×	×	×
Captures 75% of airborne contaminants	1	×	×	X
Doesn't redistribute particles back into the atmosphere	1	×	×	X
Doesn't harbour bugs	1	×	×	X
Can be recycled at the end of its lifecycle	1	×	×	X
Large surface area to allow for multiple footsteps	1	×	×	1
High surface energy	1	×	1	X
Adhesive free	1	1	×	1



LOW COST WITH HIGH RISK ALTERNATIVES

Other polymeric systems are emerging onto the market, but nothing rivals Dycem. We are the only company with independent scientific data that validates our product and its ability to protect your critical environments. Furthermore, our after sales service is unrivalled and as we manufacture in house, you are assured quality 100% of the time.

ONLY DYCEM OFFERS MULTIPLE SOLUTIONS

Dycem's vast range of products, solutions and service options, along with a wide variety of edging options, enables Dycem to create the best solution, bespoke to your needs. Other competitive products do not offer this complete solution.

DYCEM'S QUALITY AND ENVIRONMENTAL IMPACT

Dycem is ISO 9001:2008 and ISO 14001:2004 certified, assuring minimal environmental impact 100% of the time. Our products are also CE certified, conforming to requirements of the EC directives.

ONLY DYCEM HAS GUARANTEED RELIABILITY

Dycem effectively decontaminates foot and wheel traffic and comes with up to a 3-5 year performance guarantee when fitted by a Dycem approved flooring contractor.

PROTECTION OF CRITICAL ENVIRONMENT

Dycem will tailor all offerings to the bespoke needs of each and every individual customer, in whatever market, involving the development of a broad range of products designed to provide solutions in each and every situation.

ONLY DYCEM OFFERS TOP SERVICE THROUGHOUT

Dycem is more than just a product. Our team of contamination control experts ensure the best possible service in order to protect your critical environments.

This includes an in-depth site survey, consultation, top quality installation, after sales guarantee and support, and regular testing to ensure Dycem optimal performance.

Don't let us just tell you, view what our customers have to say in the testimonials section at the back of this brochure.

SYSTEMS COMPARISON	Dycem	Other Polymeric Systems	Peel-Off Mats
Ability to create bespoke sizes for any room construction types	1	1	×
Reliable manufacturing quality everytime	1	×	×
Fully edged and sealed system for seamless transistion on and off the area	1	×	×
Quality adhesive used ensuring full subfloor adhesion	1	×	×
Specially selected backing materials for product reinforcement during life cycle	1	×	×
Guaranteed decontamination performance for a minimum of 3 years	1	×	×
Installed by approved service technicians	1	×	×
Ability to clean and incorporate into SOP's	1	1	×

Dycem

CLEANZONE CLEANZONE

FOR PEDESTRIAN AND LIGHT WHEELED TRAFFIC

CZ01 is a high performance contamination control zone suitable for light wheeled traffic and heavier pedestrian flows. Permanently installed, it is the most effective way of controlling all forms of foot, wheel and air borne contamination. Dycem CleanZone is available in a range of attractive designs which means it still looks good between wet cleaning.

OPTIONS

CZ01 has the flexibility to be installed into in a variety of different sized and shaped areas, it is accompanied by a number of edging system choices that will be illustrated in this brochure and can be demonstrated by our contamination control specialists.

BENEFITS

- Prevents over 99% of contamination from entering your critical area.
- Reduced floor and air particle / microbial counts.
- Improved yield, cost savings and profitability.
- Reduced risk of high product rejection rates.
- Dycem products cannot be bypassed and require no overt action.
- Available in a range of low profile edging systems.
- Flame retardent option available.
- Coving and inlaid options available.



Decorative colours to mask the contamination



Solid colours to highlight the contamination

Dycem

WORKZONE

FOR LARGE TROLLEYS, PALLET TRUCKS AND FORK LIFTS

CZ02 has been specially designed to remove contamination from areas subject to heavy wheeled traffic. It effectively attracts, collects and retains contamination from the wheels of forklifts, pallet trucks, large trolleys and carts, preventing particles and microbes from getting into your critical areas.

OPTIONS

CZ02 has the flexibility to be installed into in a variety of heavy duty areas, it is accompanied by either a heavy duty aluminium or low profile food grade stainless steel option. These are illustrated in this brochure and can be demonstrated by our contamination control specialists.

BENEFITS

- Prevents over 99% of contamination from entering your critical area.
- It effectively attracts, collects and retains contamination from the wheels of forklifts, pallet trucks, large trolleys and carts.
- Large sizes available to ensure maximum decontamination of wheels.
- Flame retardant option available.
- Comes complete with two different edging options: heavy duty aluminium edging or a lower profile stainless steel option.
- Coving and inlaid options available.
- · Periodic replacement or service contract available.
- Masking available to hide contamination once on Dycem.



Decorative colours to mask the contamination

Solid colours to highlight the contamination



BLUE



TESTIMONIALS



"Independent tests carried out at GlaxoSmithKline prove that Dycem High Performance Contamination Control Zones prevent over 99% of all viable and non-viable foot and wheel-borne contamination from entering a critical area."

Dr Caroline Clibbon, Senior Microbiologist, GlaxoSmithKline, UK



"We have recognized that the Dycem Zones work very well - confirmed by measurements made by the manufacturer's representative - our powder remains in the zone and does not spread outside the production areas. I can only recommend the installation of Dycem zones—if you adhere to the rules for cleaning them, the effect is really noticeable."

Sylva Balcárková, a Teva's shift leader



"Dycem is the most cost effective means of controlling contamination at floor level and preventing contamination from getting into critical development work."

David Williams, Honda



"Dycem High Performance Contamination Control Zones are great at trapping contamination and helping to clean-up various areas in the paint department, preventing contamination from affecting the paint finish."

Gary Appleton, Ford

King's College Hospital

"We have used Dycem for many years in our aseptic processing areas. We use it in transfer hatches (for wheels) and at entrances and exits to restrict the outside micro-organisms from getting into the facility."

David Cope, Kings College Hospital



"We have used Dycem for over 6 years, it is the most effective and cost effective method of preventing contamination down to less than 5 micron and stops it from getting into our photo mask manufacturing facility."

Susan Jeynes, Project Engineer Photronics, Wales

EPSON

"We have calculated that even a short time after installation we have saved money by using these products. I would like to add that the customer service has also been exceptional."



"Since replacing Peel-off Mats we have seen a noticeable improvement in static charge within the labs and surrounding areas. We also found that a lot of dirt was building in between where mats were ganged together. A much more effective method of prevention."

SONY

"We invested in Dycem some five years ago to protect our critical environments i.e cleanrooms and camera assembly. Owing to the success of our manufacturing we have now built new cleanrooms and improved the cleanliness of our controlled areas. The improvement in those areas is very much down to the Dycem product."

Mark Wells, Sony, Wales









TESTIMONIALS



"It is of great importance to Seagate that contamination is kept to an absolute minimal possibility; we take great precautions to protect the production in all other areas. Dycem have provided excellent service alongside very high quality products."



"We have been so satisfied with the performance of the products that we are in the process of identifying additional locations where Cleanzone or WorkZone can be applied to further enhance our contamination control. "

Nigel Dodd, Health Physicist at the PowerStation

HOYA

"We found the service from Dycem particularly helpful when deciding which products would be of most use to ourselves in the company. We were greeted with a friendly and approachable team who were also available to answer any further queries we might have after installation."



"Dycem High Performance Contamination Control Zones have certainly reduced our particulate levels as well as cleaning costs. We have been very happy with the results and continued customer care that we have experienced from the Dycem team."

Monsieur Claude Muller, expert trainer in Techniques Aseptiques.



"We have found Dycem to very effectively live up to the statements it makes in its product policy. We require a very high standard of service which Dycem very effortlessly supplied us with. We will certainly consider using other products from the company in the future."



"We installed Dycem High Performance Contamination Control Zones 12 months ago as part of our ongoing programme to control contamination. It was so effective at removing contamination from both feet and wheels that we decided to increase the number of Dycem areas as we built our additional cleanrooms and moved towards more controlled warehouse environments."

Suzanne Stubbs, Technical Manager, Shield Medicare.

SANOFI 🌍

"After researching many companies providing similar solutions, we were keen to use Dycem for their apparent cost efficiency. This has proved to be an absolute; we are convinced the installation has saved us a great amount in the long term. "



"Dycem dramatically reduces the levels of dust from IT server rooms. IT cleaning have also found that although Dycem has to be cleaned on a daily basis its effect is to reduce the quarterly cleans to half yearly, enabling you to reduce your cleaning and maintainence costs."

Steve Yates, IT Cleaning.





REMEMBER ONLY DYCEM OFFERS:

- Contamination control flooring 2 metres (6'6" wide)
- Colour options to help mask captured contamination
- Independent scientific data and testimonials to prove product effectiveness
- Trained contamination control specialists that conduct detailed site surveys to ensure your facility is given the best solution

DON'T TAKE THE RISK

Call Dycem now for a site survey:

Dycem Ltd Europe Ashley Trading Estate Bristol BS2 9BB United Kingdom

Tel: +44 (0)117 955 9921 Fax: +44 (0)117 954 1194 uk@dycem.com



www.dycem-cc.com

Dycem Ltd USA 83 Gilbane Street Warwick, RI 02886 USA

Tel: +1 1-800 458 0060 Fax: +1 401 739 9634 info@dycemusa.com

9001 Quility Manage bsi. I4001 Environment. Management

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DISTRIBUIDO POR:

LOROTECH SA DE CV ROBLE #64 COL VICENTE GUERRERO ZAPOPAN JALISCO (33) 3624-9896 (33) 3216-0968

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