

*A replacement to PVC...*

**micrAgard PLUS**  
By  
**openhouse**



**Environmentally  
Friendly**

As well as preventing the cross-contamination of bacteria, this is a non-rot, UV stable material meaning the textile can be recycled.



**Fire  
Retardant**

Engineered to withstand flames leaving the surface slightly burnt with discolouration.



**Anti-Microbial**

Bacteria cannot live on the surface of the material to prevent the spread of illness and infection.

## INFECTION CONTROL

Infection Control has always been a challenge. Together we can minimise the cross-contamination of bacteria and help prevent it from spreading. This can be achieved by using **micrAgard PLUS**.

This booklet will show you how much of a difference you can make by using **micrAgard PLUS** and how PVC materials can cause a large part of infection problems.

As **Openhouse** supplies the Airline Industry the same regulations apply but to a much higher level.

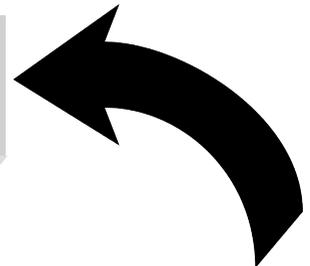
As a result all our **micrAgard** products, as well as being anti-microbial to prevent cross-contamination of bacteria; they also meet the CAA and EASA standards for being flame-retardant if required.

## LEGISLATION AGAINST THE USE OF PVC

### The Care Quality Commission

It is a requirement, as of 1st April 2009, for all government and private funded hospitals, medical centres, ambulance services and dental surgeries to register and comply with the Care Quality Commission standards, this involves:

- Implementing procedures and registering to confirm compliance.
- The environmental act of 1999 DH/PHLS starts the ball rolling with guidance which become enshrined in law under the section 20 (5) of the health and social care act 2008.



## THIS BASICALLY MEANS:

All institutions need to look at the control that can be offered from its entire supplier base to prevent infections happening at the point of entry and to minimize the overall problem.  
micrAgard fabric was developed with this in mind.

# PVC

And the dangers of...



## A quick lesson in PVC

**PVC** (both soft and hard) is one of the most widely used types of plastics. It is used for packaging in cling film and bottles, for consumer products such as credit cards and audio records, for construction in window frames and cables, for imitation leather, and around the home in pipes, flooring, wallpaper and window blinds. It is used by manufacturers for car interiors, in hospitals for medical disposables... and many more things.

## PVC

And the dangers of...

During the production of **PVC**, dioxins, some of the most toxic chemicals known, are created and released. Over their lifetime, PVC products can leak harmful additives. Furthermore, at the end of their lifetime, PVC products must be either burned or buried. Burning creates and releases more dioxins and other chlorine-containing compounds that contaminate our land and waterways. Attempts to recycle PVC have proven difficult, so much of it ends up in landfills.

**And that's where we come in...**

## WHY MICRAGARD OVER PVC?



### Anti-microbial

Prevents the cross-contamination of bacteria.



### Aviation Standard

Tested to meet aircraft aviation standards.



### Thermo Care

Washable with mild soap and water and machine washable up to 40 °C



### Fire Retardant

Engineered to withstand flames leaving the surface slightly burnt with discolouration.



### Fluid Repellent

MicrAgard PLUS repels against fluids; keeping the internal equipment safe and dry.



### Waterproof Zips

Brand new waterproof zips which repel water to keep the bag contents safe and dry.



### Custom Branding

In-house graphics produced to the highest quality standards using Weld-able Reflective Badges, Reflective Printing & Embroidery; it looks great and stays with the product for life.



### Comfort Straps

Carry it off in style and comfort! Securely fastened grab handles and strapping system engineered for maximum comfort when carried.



### Hi Visibility

Maximum visibility achieved with high quality reflective coverage which will last the lifetime of the bag.



### ISO Standard

For maximum quality assurance all our products are made to UKAS standard.



### Hand-Finished

The external solid reflective piping and internal non-rot binding finishes and protects the edges to perfection.



### Non-Rot Material

Non-rot, UV stable material meaning your bag can be recycled.



### Impact Resistance

The high tenacity material provides best in industry impact protection & build quality.



### Under-Protection

Option for rubber base feet to protect the base of the bag from being damaged when in use.



### Intrinsically Safe

Protection technique for safe operation of electronic equipment.



### Lockable Zips

Facility to lock the zips through our trademark easy-pull zip pullers.



### Heavy Duty Fittings

High quality durable fittings for use in the most demanding environment.



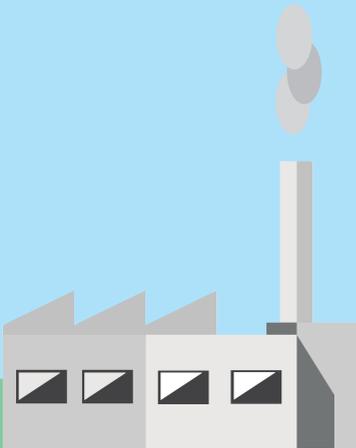
### Quality Guarantee

We have every faith in the high quality of our products to allow a limited lifetime guarantee.

# The Environment

## & PVC

- Chemicals, such as phthalates, are added to PVC to make it soft and flexible. Laboratory studies in animals show that some of these chemicals are linked to cancer and kidney damage and may interfere with the reproductive system and development.
- PVC plants are disproportionately located in low-income communities and communities of colour, making the production of PVC a major environmental justice concern for neighboring residents.
- PVC manufacturing facilities have poisoned workers and fenceline neighbors, polluted the air, contaminated drinking water supplies, and even wiped entire neighborhoods off the map.
- PVC accounts for less than 1% of all the domestic waste in the EU. Unlike other common forms of waste, PVC is extremely hard to recycle. Greenpeace says PVC recycling is less than 1% of consumption and it is not even practical for 70 - 85% of PVC waste. Hundreds of thousands of tonnes of PVC waste needs to be disposed of by incineration or in land fill sites each year.
- The PVC industry is rapidly expanding in Latin America and Asia so that eventually a growing waste mountain will be generated in these parts of the world.
- Additives may comprise up to 60% of a PVC product's weight. Of all plastics, PVC uses the highest proportion of additives.
- The world is facing a waste crisis from PVC. Short-life PVC products, disposed of within a few years, have caused serious PVC waste problems, especially when incinerated. The average life span of durable products, which make up more than half of PVC consumption, is around 34 years.



Incineration is not a sustainable option for dealing with waste. When plastic is burned, less energy is generated from it than was used to make it. Incineration also means that the carbon contained within it is emitted as carbon dioxide (CO<sub>2</sub>), which is a greenhouse gas. Toxic substances, such as dioxins, are also emitted, and large amounts of solid wastes are produced as slag, ash, filter residues and neutralisation salt residues.



PVC does not readily decompose and additives from PVC in landfills can contaminate soil and groundwater.

Considerable quantities of PVC are present in landfills, as a result of the disposal of municipal solid wastes (MSW), and construction and other wastes. Almost one million tonnes of PVC was land filled in Europe as MSW in 1994. PVC waste from other sectors, such as agriculture, the car industry, construction and distribution is not included and will add considerably to this figure.

# micrAgard PLUS



**is fully recyclable and free  
from the harmful components  
which are used in PVC.**

**VS.**

**micrAgard  
PLUS VS. PVC**

**Numerous tests have taken place on both micrAgard and PVC to analyse their reactions.**

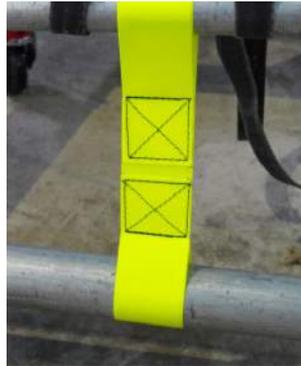
**They clearly show the better material.**

# VS.

## TEST 1

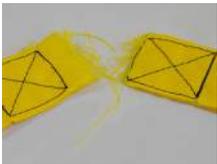
### TEAR STRENGTH

Two different sizes of each material were tested to see how much weight they could withstand before ripping.

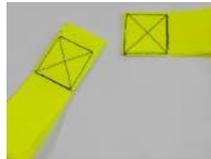


## micrAgard PLUS

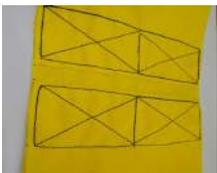
## PVC



When testing the 50mm width piece of material it ripped at 190kgs; the material pulled and frayed.



When testing the 50mm piece of material it ripped at 158kgs and was slightly frayed.



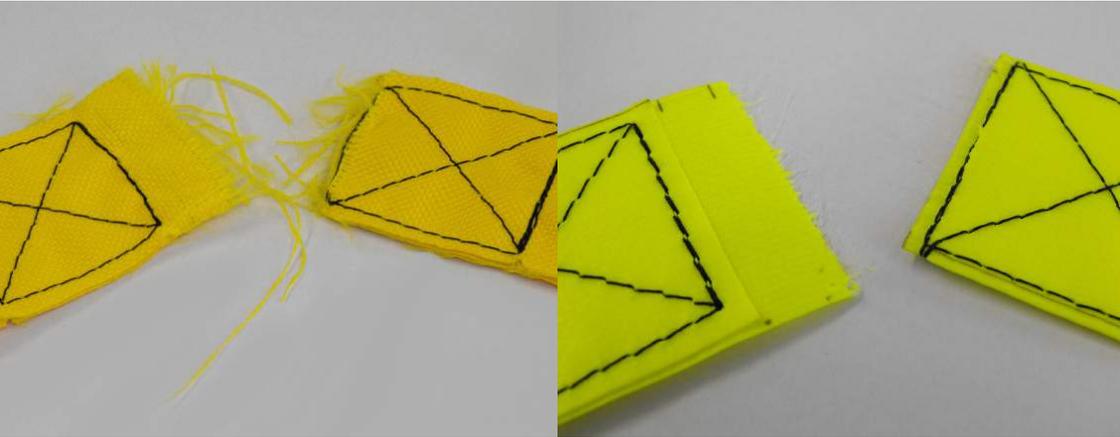
When testing the 200mm piece of material it reached a strength of 500kgs; the material stretched slightly and became thin in places but did not rip.



When testing the 200mm piece of material it ripped at 440kgs; the large width reacted in the same way as the small and frayed slightly.

## Conclusion

Overall, micrAgard PLUS materials were stonger than PVC materials. micrAgard can be put under a lot more pressure and can withstand more vigorous use.



# TEST 2

## WEIGHT COMPARISON

A one metre square sample of both and PVC were weighed and compared.

micrAgard PLUS

PVC

Weighed  
**360g**

Weighed  
**540g**

So you can see from this that **PVC** is nearly twice as heavy as **micrAgard**.

The restriction on a paramedic's backpack is 15kg, so if **PVC** is used it increases the overall weight of the backpack and restricts the amount of equipment which can be carried as well as potentially causing back problems for users.

# VS.

## TEST 3

### REACTION TO SHARP IMPLEMENTS & ROUGH SURFACES

Both materials were tested with the same controlled conditions to see the effect.

## micAgard PLUS



**micArd PLUS** was scraped vigorously with a sharp implement. The surface of the material was barely marked and remained intact keeping its anti-microbial and flame retardant properties.

## PVC



**PVC** was put under the same test as **micAgard**. The surface of the material was scraped off and it lost all of its properties as the surface had been tampered with. Once the surface is damaged bacteria can infest the material and remain there for its life-time.

This is a massive problem for infection control.

# TEST 4

## *WATER RESISTANCE*

Both materials were tested for water resistance and were monitored to see if the material soaked in the moisture.

Both materials had no reaction to the water; the water remained on the surface of both and could be wiped off. Therefore both materials are water resistant.

# micrAgard PLUS



# PVC



The same test was also done on the material swatches which had been put through the abrasion test; **all the moisture soaked into the PVC fabric** whereas the micrAgard left the water on the surface.

# VS.

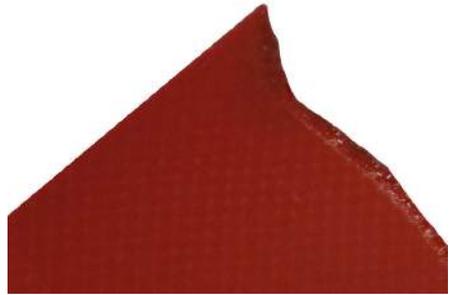
## TEST 5

### *FIRE RETARDANCY*

Both materials were placed directly into a controlled flame and tested with the same conditions to see the effect.

## micrAgard PLUS

**micrArd PLUS** withstood the flame and the surface was slightly burnt and discoloured; the material was left with a shiny surface.



## PVC

**PVC** materials were put under the same conditions and it could not withstand the flame. The material surface burnt away quickly and released some very unpleasant fumes; atmospheric chlorine.

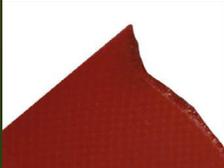


# CONCLUSION

PVC isn't as strong as micrAgard PLUS.

If it's surface is damaged in any way, bacteria can enter the substrates in the material and cannot be removed, they will remain in the material for it's life-time.

This has aided the increase of MRSA and c.Diff. micrAgard PLUS has more superior properties than PVC and is seen to be a stronger and more environmentally friendly material. micrAgard PLUS withstood the vigorous tests and the material remained intact; keeping all of it's properties. The only slight effect these tests had on the material was on it's apperance.

	micrAgard PLUS	PVC
Tear Strength	 Reached 500kg without ripping.	 Ripped at 440kgs
Weight (per meter sq.)	 Weighed 360g	 Weighed 540g
Abrasion	 	 
Water Resistance	 	 
Water Resistance when damaged	 Water stayed on the surface.	 Water soaked into the fabric
Fire Retardancy	 	 

# CUSTOM BAG PROPERTIES

## *External Materials*

**micrAgard PLUS** is a high tenacity system with exceptional mechanical properties. The all new **micrAgard PLUS** is an extremely durable dual-faced TPU coated nylon fabric which is Anti-Bacterial, Fire-Retardant, Wipe-Clean & FDA Approved with improved chemical, oil and abrasion resistance as well as upgraded protection from external temperature changes.

## *Internal Materials*

**micrAgard PLUS** silver-lining is a high tenacity system with exceptional mechanical properties being entirely antimicrobial. It is washable, intrinsically safe, fluid repellent and rot-proof, also having a thermal quality providing excellent abrasion and tear resistance despite being light in weight.

## *Handles & Straps*

Carry it off in style and comfort. The Openhouse comfort grab handles are securely fastened through to the silverlining; "history tells us they don't come off".

The silver reflective non-rot, wareproof webbing provides the core strength whilst the internal padded handlebar system prevents the handle crushing the hand thus providing comfortable safe carrying.

The Openhouse shoulder and backpack straps have been carefully engineered to afford maximum comfort when carrying. On a backpack comfort can be enhanced by fitting the optional adjustable lumber support and waist harness.



# Perimeter Protection

External solid reflective piping and internal non rot binding finishes and protects the edges to perfection. **micAgard PLUS** specification has been purposefully designed to remove the necessity for ugly detachable base panels. The high tenacity exterior finish together with the deep layer of integral high density foam and extra base protection plates is a match for any type of handling.



# Zips

**micAgard PLUS** zips and easy-pull zip runners are waterproof and easy to open without those fiddly storm flaps which also means they are easier to clean and quicker to open. The zip runners are also lock-able enabling any high-value or dangerous contents to be protected.



# Graphics

## Embroidery

Our embroidery is produced in-house to the highest quality using the maximum amount of stitches possible for each design, ensuring it looks great and stays with the product for the whole of it's life.



## Weld-able Reflective Badges - The Wipe-Clean Solution

Our brand new weld-able badges are the ultimate solution in wipe-clean products. The badges are impregnated into the fabric so there are no "sewn on" reflective strips that can rip off.



## Reflective Printing

Printed with high quality reflective coverage which will last the lifetime of the bag. Offers maximum visibility even when the bag is open and in use.



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