

## Clinical Information about Chemflex II fabric cover

All Jewell Nursing Solutions products are covered with a coated polyurethane fabric called Chemflex II. This is a high grade medical fabric best suited for use under a person's skin because it is both antimicrobial, moisture resistant and breathable.

We use the Chemflex II fabric to cover all our products for the same reason this type of construction is used for low air loss mattress surfaces. It functions better for long term exposure to skin and provides better immersion and envelopment for optimal pressure distribution. It is also antimicrobial treated and can be disinfected with any type of disinfectant wipe, including hydrogen peroxide, chlorine bleach and alcohol based solutions. Bacteria and fungus cannot survive on this fabric, and can be wiped off easily.

Below is the manufacturers test results for the Chemflex II fabric. This testing is required to meet required federal and state specifications for safety. Especially important in terms of medical use of this fabric is the data on anti-fungal inhibition testing (antimicrobial), liquid penetration in psi (Moisture resistance in pounds per square inch), and vapor transmission rates (breathability). Also important is stretch and elongation, which measures how flexible and conforming the fabric is when a person lays on it.

This fabric will not allow moisture to penetrate the fabric until pressures exceed 150 psi. This amount of pressure is virtually impossible to reach in real life situations. This is a measure of pressure per square inch, not of total body weight.

In our studies we find that a 160lb person laying on The BackBone™ wedge will have about 31 pounds per square inch on the surface that support his body. At this measure, a person would have to weight 750 pounds before moisture would penetrate this fabric!

Another consideration is that fabrics that have minimal stretch and elongation are less flexible, making them more "rigid" to pressure. Rigidity reduces the resistance, so there is less friction and shear when a person slides over the surface. But the slippery-ness of the fabric is a double edged sword. Sure there is less friction and sheer when the person slides. But the problem is a minimal stretch fabric is so slippery that sliding cannot be avoided. So a patient is repeatedly exposed to low levels friction and sheer, which will eventually lead to skin breakdown.

In our studies we found that patients positioned on high rigidity, low resistant fabric wedges slide off the wedge and back onto the sacrum/coccyx. When immersion and envelopment is possible, such as is the case with Chemflex II, a persons body can 'sink into' the cushion rather than slide over it. Plus these fabrics feel much softer and comfortable against the skin.

When compared to other support devices, The Backbone™ was most efficient in both pressure reduction over the sacral/coccyx area. (see our study "comparison of pressures") The Backbone was also more efficient in distributing pressures over all points of support on the body, even the scapula and buttocks. Other bony support device never exceeded 50lbs even with the laminate backed wedge ("Typical wedge"), although overall pressure distribution with the laminated wedge was far less efficient.

## About the seams

Right now all positioning cushions, including Jewell Nursing Solutions cushions, have sewn seams. Because the fabric must be sewn there is a slight risk of liquid penetration through the seams, but only if the cushion is submerged in fluid or liquid stool. This is why we suggest the cushion be disposed of if it accidentally gets immersed in fluids or liquid stools.

Conveniently the easiest way to control for submersion risk is also standard protocol for moisture control. A moisture control pad should be placed between the support cushion and the person your are protecting. (such as the high absorbancy Maxisorb pads made by Medline). This provides a physical barrier to both moisture and contaminants, and can reduce slipping without skin irritation.

We recognize that this seam problem is a significant issue and we recognize that solving this problem would represent a significant breakthrough in positioning device effectiveness and safety. So we have been engaged in finding a solution to this problem for quite some time. We will be coming out soon with a sealed version. Since it will be much more expensive and only necessary when being used under multiple patients, it will only be of interest to acute and long term care settings only. Stay tuned!

## Other important information about positioning cushions covers

- DO NOT put a cotton sheet over polyurethane covered cushions, especially 30 degree lateral turning wedges because it makes it too slippery and your person will slide right off the wedge. It is ok to put paper backed chux (Maxisorb or ultrasorb by medline only) because these are not slippery and very efficient at absorbing moisture.
- DO NOT place uncovered foam under a person for an extended period of time because foam is a sponge for moisture and fungus, and it is quite unpleasant on your persons skin. You can cover with regular cotton sheets to make it more pleasant but cotton will not protect against moisture exposure and fungus growth. Covering it with high absorbancy maxisorb pads is much better but fluids that sneak under the pad and into the foam will still be a problem.
- DO NOT use vinyl covered cushions. Vinyl doesn't breath and will cause the skin to sweat almost immediately, which will soften the skin and make it more vulnerable to breakdown. Vinyl covered cushions should be illegal.



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<u>Property</u>	<u>Test Method</u>	<u>Test Results</u>
EPA Registration #'s	64881-1	Free of Heavy Metals and Arsenicals Phthalate and Lead Free
Base Fabric	Polyester Knit	
Anti-Fungal Inhibition	AATCC Method 30-1988	Pass
Bacteria Resistance		
Activity Reduction %		
Staph Aureus (Gram +)	AATCC Method 147 – 1988	Pass
Kleb. Pneumoniae (Gram -)		Pass
Flame Resistance	Cal. Tech. Bulletin 117	Pass
Cigarette Ignition Barrier	16 CFR, Part 1632	Class A
Abrasion Resistance	ASTM D4966-12	>10,000 Cycles
Liquid Penetration, psi	Fed. Std. 191 5512	F-150, R-150
Moisture Vapor Transmission	ASTM E96	194 (G/m <sup>2</sup> /24hr)
Tear Strength	Fed Std. 191 5134 Test Performed After Material Stretched	W-15 F-9.5
Breaking Strength, lbs.	Fed Std. 191 5100	W-136 F – 69+ Fabric Did Not Break
Weight (oz/sq/yd)	Fed Std. 191 Method 5041	5.5 oz.
Stretch and Elongation	Fed Std. 191A, Method 5102	% Elongation: 10 lbf - W-18.9, F-103.5 20 lbf - W-26.4, F-130.0