



Enhancing Wheelchair Comfort and Safety

Case Story: Why coated fabrics matter for Karma wheelchair users

Wheelchair users frequently encounter issues due to prolonged sitting, such as pressure injuries, discomfort from non-breathable fabrics, and hygiene difficulties.

The Role of Breathable, Durable Fabrics in Preventing Pressure Injuries

For wheelchair users, *50% of their body's weight is concentrated on just 8% of the body, specifically the bottom of the spine*. This puts them at greater risk of developing avoidable pressure injuries due to the increased pressure on a small surface area, potentially leading to discomfort, skin breakdown, and other health issues¹.

Research has highlighted the persistent nature of wounds following the onset of a pressure injury. It was found that patients in wheelchairs experience greater pressure concentrated on smaller areas, and subsequent recommendations are to use a polyurethane cushion up to 8 cm thick to help redistribute this pressure².

Dense fabrics such as PVC lack breathability, leading to excessive sweating and discomfort. Moreover, fabrics that are hard to clean can lead to hygiene concerns and potential health issues.

For over 35 years, Karma Medical has been a leading manufacturer of award-winning wheelchairs, dedicated to quality, ergonomic, and sustainability.

A key component in their commitment to user comfort and safety is their use of polyurethane (PU) coated fabrics, including Dartex® by Trelleborg, for seat components.

“Our commitment to quality and user comfort is reflected in our choice of materials. The Dartex® fabric by Trelleborg provides the perfect balance of breathability, durability, and comfort, ensuring that our wheelchairs meet the highest standards and effectively support our users’ needs”

Paige Chen, Marketing AVP, Karma Medical

Images: © Karma Medical

References: ¹Razmus, I. (2019) Wheelchairs and Pressure Injuries: What Do We Know?, Woundsource.com. Available at: <https://www.woundsource.com/blog/wheelchairs-and-pressure-injuries-what-do-we-know> (Accessed: 23 September 2024).

² Ragan R, Kernozek TW, Bidar M, Matheson JW. (2002) Seat-interface pressure on various thicknesses of foam wheelchair cushions: a finite modeling approach. Arch Phys Med Rehabil. 2002;83(6):872-875.

Karma Medical's use of Dartex® fabrics brings multiple benefits to their wheelchair customers:

- **Breathability:** Dartex® fabric promotes air circulation, helping to reduce moisture at the skin / cushion interface helps to maintain a cooler, more comfortable microclimate. Breathable fabrics are crucial for preventing moisture build up and mitigating the risk of avoidable pressure injuries.
- **Durability and Cleanability:** The PU-coated surface of Dartex® fabric is easy to wipe clean, making it simpler to maintain hygiene and prevent the accumulation of bacteria and contaminants.
- **Stretch for Immersion and Envelopment:** Dartex® fabric has significant stretch properties, which provides immersion and envelopment for the wheelchair user. This results in enhanced comfort by reducing pressure points and distributing pressure more evenly.

The use of Dartex® fabric with Karma Medical's wheelchair cushions exemplifies the positive impact of selecting the right materials.

By addressing challenges related to breathability, durability, and comfort, PU-coated fabrics significantly enhance the functionality and longevity of wheelchairs, ultimately improving the daily lives of users.

“At Trelleborg, we are dedicated to improving the quality of life for wheelchair users through innovative materials. Our Dartex® fabric’s breathability, durability, and comfort are integral to Karma Medical’s award-winning wheelchairs, supporting their mission to enhance user experience and well-being.”

Lawrence Tan, APAC Business Development Manager, Trelleborg

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