TRELLEBORG ENGINEERED COATED FABRICS

Healthcare & Medical Furniture Textile Range

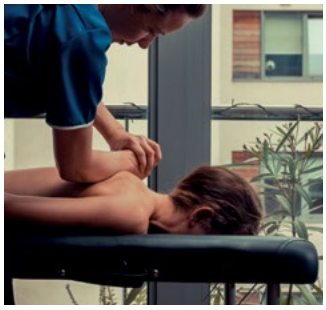
Where Skin Meets Fabric: Healthcare Furniture Solutions from Trelleborg Engineered Coated Fabrics

When specifying technical textiles for healthcare and medical environments, choose trusted transfer-coated products from Trelleborg.

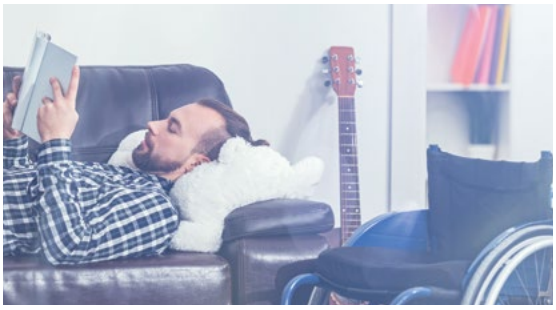
We design and manufacture innovative skin-safe Dartex® brand textiles for a wide range of healthcare furniture applications for global manufacturers.

Whatever your requirement, we have the solution for your seating needs.









Application areas

Dartex® polyurethane coated fabrics have been trusted by healthcare professionals for over 40 years. Within Healthcare & Medical furniture, application areas include:

- Bedside chairs
- Chemotherapy chairs
- Dialysis chairs
- Dental chairs
- Recliners
- Spinal beds
- Treatment tables
- Wheelchairs
- Other specialist medical seating and devices

THE SUSTAINABLE CHOICE

Polyurethane-coated fabrics are by their nature PVC-free. The need to eliminate PVC in medical settings has long been recognized:

- Flexible PVCs can contain endocrine disrupting chemicals (phthalates) which are known to be damaging to health and the environment
- Chemical degradation caused by rigorous cleaning with sodium hypochlorite will crack the structure of the PVC polymers and result in the fabric failing over time exposing threads and becoming an infection control risk
- A study undertaken by the Centers for Disease Control and Prevention in 2003-2004 found measurable levels of many phthalate metabolites in urine samples of over 2500 people, suggesting phthalate exposure is widespread in the U.S. population (https://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html, accessed Dec 2021)
- As most clinical waste is incinerated, there is a risk of toxic dioxin formation when PVC is burned in poorly managed high temperatures
- **Upgrade your PVC coated fabrics to polyurethane** - Polyurethanes do not need plasticizers, and do not create dioxins when incinerated.

THE HEALTHIER CHOICE - HEALTHY INTERIORS COMPLIANT

Every day, patients and employees are exposed to a wide array of chemicals in hospitals and health care facilities, which can have a lasting negative impact on individual health, public health, and the environment.

In response to this, Health Care Without Harm and Practice Greenhealth launched an initiative for 'Healthy Interiors' in the US, which identifies some of the worst chemicals and materials used in hospital and healthcare facility furnishings.

The initiative aims to make it easier for hospitals and healthcare facilities to procure safer, greener textiles and furniture for their patients.

All healthcare textiles from Trelleborg Engineered Coated Fabrics comply with the following requirements for Healthy Interiors:

- Formaldehyde: Complies with ANSI/BIFMA e3-2011, Sections 7.6.1 and 7.6.2
- PFCs: Does not contain PFCs
- PVC: Does not contain PVC
- Antimicrobials: Included for the sole purpose of preserving the product

In addition, fabrics can be supplied:

- Without the inclusion of any flame retardants

Or, if required by code:

- Using a flame retardant that complies to the GreenScreen Benchmark 3 criteria.

THE CERTIFIED CHOICE

Manufactured in the UK and USA, Trelleborg Engineered Coated Fabrics are:

- PVC Free/Latex Free/Phthalate Free/Halogen Free FR
- REACH & RoHS compliant
- BS EN ISO 9001:2015 (FM 14842) certified
- BS EN ISO 14001:2015 (SE006995) certified.

In-house testing

Alongside our manufacturing capabilities, Trelleborg Engineered Coated Fabrics also offers Technical Services to help differentiate your product:

- Colour matching
- Composite testing
- Material testing
- Microclimate testing
- Product design & engineering
- Regulatory support
- Standards checking
- **And more...**

PVC FREE

Other ranges available

As well as the products outlined in this brochure, Trelleborg Engineered Coated Fabrics offers a range of options that are suitable for other medical devices:

- Blood Pressure Cuffs
- Conductive fabrics
- Other Support Surfaces e.g. Hospital Mattresses
- Surgical
- Endoscopy bags
- Laparoscopy bags
- Reuseable Gowns for Medical Professionals
- Tourniquets

The luxury choice – Dartex® Leather

The latest innovation in faux leather – lightweight, breathable and as strong as vinyl

LEA422

Dartex® Leather has a luxurious feel for enhanced comfort and comes with unrivalled stretch properties as standard – an uncharacteristic feature of other synthetic leathers on the market.

Typical average across <10 batches
Product / 53% PU: 16% **PA:** 19% **MA:** 12% CO

Composition: Coating / 100% Polyurethane

PROPERTY	TEST METHOD▲	METRIC*	IMPERIAL*
PHYSICAL			
Thickness	EN ISO 2286-3	1.05mm	0.04inch
Mass per unit area	EN ISO 2286-2	420g/m²	12.39oz/yd²
Width		100-140cm	39-55inch
PERFORMANCE			
Coating Adhesion – warp	EN ISO2411-2	39N/50mm	8.76lbf/2in
Coating Adhesion – weft	EN ISO2411-2	32N/50mm	7.19lbf/2in
Resistance to Water Penetration (Hydrostatic Head)	BS3424-26	>100kPa	>14.5psi
MVTR – Index method	BS 3424-34	4.5%	
MVTR – Payne Cup method	ASTM D1653	300g/m²/24hr	
MVTR	ASTM E96B	120g/m²/24hr	
DURABILITY			
Breaking Strength – warp	EN ISO1421-1	354N/50mm	79.5lbf/2in
Breaking Strength – weft	EN ISO1421-1	408N/50mm	91.63lbf/2in
Breaking Extension – warp	EN ISO1421-1	100%	
Breaking Extension – weft	EN ISO1421-1	145%	
Tear Strength – warp	EN ISO4674-1	80N	18.0lbf
Tear Strength – weft	EN ISO4674-1	55N	12.4lbf
Burst Strength	EN 12332-1	591N	132.9lbf
Martindale Abrasion after 350,000 cycles	EN ISO 5470-2	Grade 1 – Very Slight	
Accelerated Ageing	EN 12280-3	Equivalent >200 weeks	
FIRE RESISTANCE			
Fire Resistance	BS7176 Med Haz	Pass	
	Cal TB 117	Pass	
COLOUR FASTNESS			
Colour Fastness to rubbing	EN20105-X12	Wet 4/5, Dry 4/5	

▲ Internal test method derived from stated standard
* This is not a specification – typical values

Dartex® is the trusted brand for medical support surface fabrics in the healthcare sector

Combining specialist stretch fabric technology and Dartex® coating capability, we have created a breathable faux leather for use in healthcare seating applications, including but not limited to:

- Bedside chairs
- Chemotherapy chairs
- Dialysis chairs
- Dental chairs
- Recliners
- Spinal beds
- Other specialist medical seating and devices

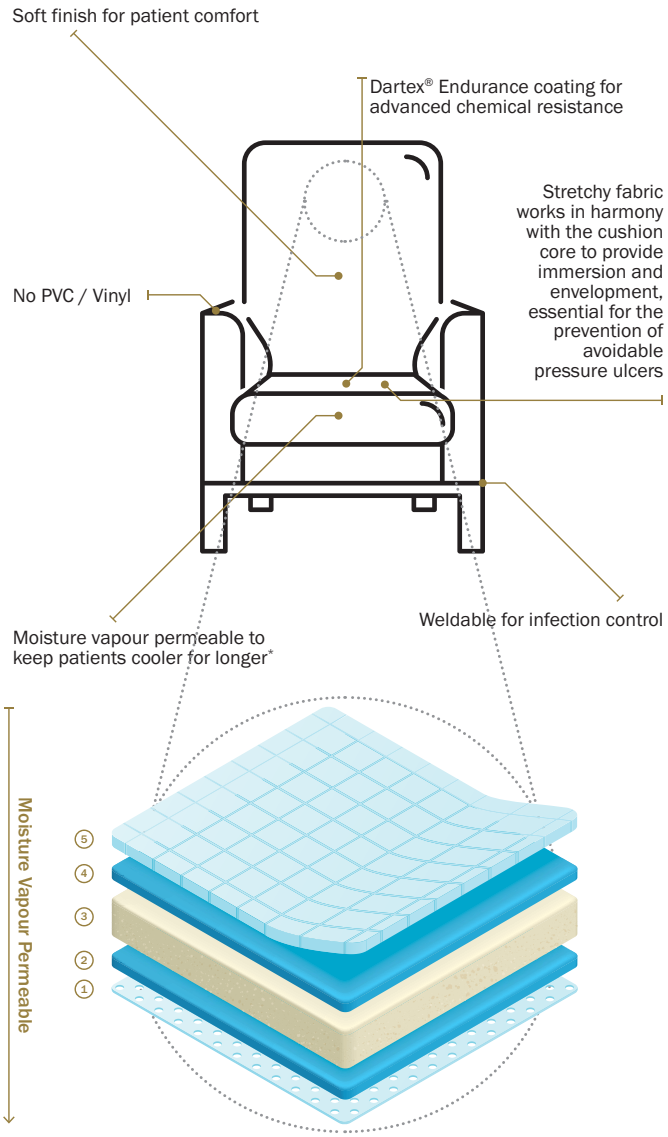
Why choose polyurethane over PVC?

Over time, the plasticizers that are used to soften the PVC and vinyl naturally migrate to the surface of the fabric. This causes the structure to weaken and crack. Polyurethane coatings do not contain plasticizers or phtalates so they **will not crack**. Polyurethane coatings are a **waterproof** barrier, but are also **moisture vapour permeable**, which make them an ideal choice for medical support surfaces.

Cleaning instructions

- Remove spillages promptly with an absorbent dry cloth
- General soiling can be handled with a microfibre cloth and tepid, soapy water (non alkaline) to remove the spillage. Rinse with clean water and dry with a soft absorbent cloth
- Infection Control: Use a 1% Sodium Hypochlorite (bleach) solution, Haz tabs or Chlor Clean. Ensure that the cleaning solution is rinsed with clean water and that the surface is wiped dry after cleaning.

Each layer of Dartex® Leather is specifically engineered for optimum patient outcomes:



LAYER 5
Antimicrobial additive to protect polyurethane coating, which lasts for the lifetime of the poduct

LAYER 4
Thick, protective Dartex® Endurance coating for advanced chemical resistance

LAYER 3
Foamed polyurethane for comfort

LAYER 2
Strong adhesive for long product lifetime

LAYER 1
Stretchy and strong substrate for pressure redistribution properties

The dependable choice – Dartex® Performance

The all-round choice for reliability Dartex® Performance sets the standard for coated healthcare & medical fabrics

PER464

The Dartex® Performance range combines maximum functionality with all round product performance, making it ideal for a wide range of seating applications.

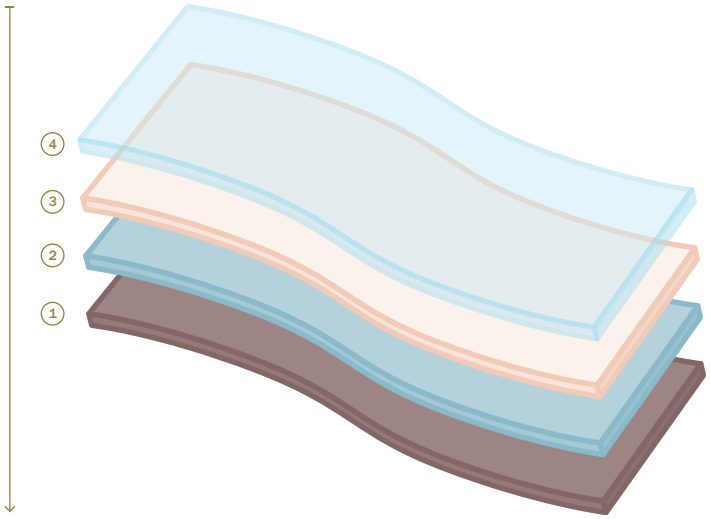
Typical average across 50+ batches
Product/35% PU: 65% PET

Composition: Coating / 100% Polyurethane

PROPERTY	TEST METHOD▲	METRIC*	IMPERIAL*
PHYSICAL			
Thickness	EN ISO 2286-3	0.77mm	0.03inch
Mass per unit area	EN ISO 2286-2	224g/m²	6.61oz/yd²
Width		100-150cm	39-55inch
PERFORMANCE			
Coating Adhesion – warp	EN ISO2411-2	60N/50mm	12.3lbf/2in
Coating Adhesion – weft	EN ISO2411-2	60N/50mm	13.5lbf/2in
Resistance to Water Penetration (Hydrostatic Head)	BS3424-26	>100kPa	>14.5psi
MVTR – Index method	BS 3424-34	10%	
MVTR – Payne Cup method	ASTM D1653	500g/m²/24hr	
MVTR	ASTM E96B	120g/m²/24hr	
DURABILITY			
Breaking Strength – warp	EN ISO1421-1	530N/50mm	115lbf/2in
Breaking Strength – weft	EN ISO1421-1	290N/50mm	61lbf/2in
Breaking Extension – warp	EN ISO1421-1	115%	
Breaking Extension – weft	EN ISO1421-1	170%	
Tear Strength – warp	EN ISO4674-1	65N	13.5lbf
Tear Strength – weft	EN ISO4674-1	55N	11.2lbf
Burst Strength	EN 12332-1	950N	214lbf
Accelerated Ageing	EN 12280-3	Equivalent >150 weeks	
WASHING			
Wash Test x5 washes at 95°C / 203°F	ISO 6330	No delamination	
Shrinkage - warp	ISO 6330 / 3759	4% change	
Shrinkage - weft	ISO 6330 / 3759	3% change	
FIRE RESISTANCE			
Fire Resistance	Cal TB117	Pass	
	EN1021-1&2	Pass	
COLOUR FASTNESS			
Colour Fastness to rubbing	EN20105-X12	Wet 4/5, Dry 4/5	

▲ Internal test method derived from stated standard
* This is not a specification – typical values

Dartex® Performance is a versatile coated fabric, widely used across healthcare & medical applications:



PERFORMANCE LAYER 4
Antimicrobial additive to protect polyurethane coating, which lasts for the lifetime of the product

Flame retardant for regulatory compliance

Colour pigment

PERFORMANCE LAYER 3
Breathable, protective Dartex® Performance coating for durability and comfort

PERFORMANCE LAYER 2
Strong, breathable adhesive for long product lifetime

PERFORMANCE LAYER 1
Stretchy and strong substrate for pressure redistribution properties

EXPLAINING IMMERSION & ENVELOPMENT

The stretch properties of a fabric play a key role in getting the most out of your seat:

Immersion is how the patient 'sinks' into the seat

Envelopment is the way the support surface surrounds a patient, redistributing the pressure

The sitter needs to sit IN the cushion, rather than ON the cushion to ensure that the medical support surface is working as it should.

These stretch properties of the fabric are key to the function of seat cushions and how they act to reduce the occurrence of avoidable pressure injuries. As shown in the diagrams below, where the sitter is 'enveloped' into the support surface, it is holding them in position and 'hugging' their form.

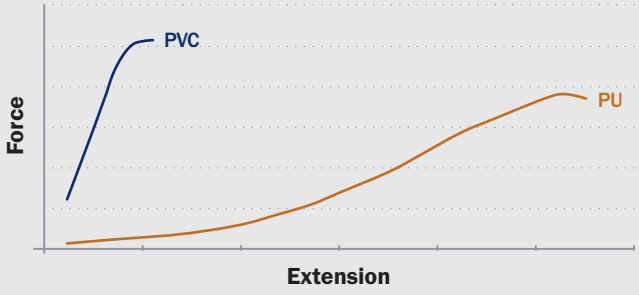
No Envelopment

Envelops around a sitter

However, for the sitter with the non-stretch PVC covered cushion, there is minimal immersion and no envelopment, so pressure forces are focused onto a small area of the body, rather than being redistributed as they would with a stretch fabric.

This graph demonstrates the difference in extension properties between PU and PVC.

FORCE / EXTENSION CURVES: PU VS. PVC

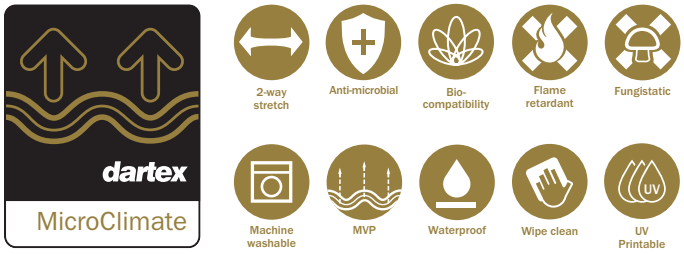


Trelleborg Engineered Coated Fabrics have long-established relationships with textile manufacturers to ensure the right amount of stretch is knitted into the construction of our fabrics. The polyurethane coating works harmoniously with the natural stretch of the fabric, allowing great performance across all kinds of surface shapes.

Another benefit of using polyurethane-coated stretch fabrics for medical upholstery is that they provide excellent recovery for no sagging or wrinkling.

The breathable choice – Dartex® Microclimate

The best moisture vapour permeable (MVP) fabric for ultimate moisture management



MIC200

Dartex® Microclimate fabric is a great choice for seating applications where there is a requirement for maintaining a comfortable interface between skin and support surface.

Typical average across 50+ batches
Product/40% PU: 60% PET

Composition: Coating / 100% Polyurethane

PROPERTY	TEST METHOD▲	METRIC*	IMPERIAL*
PHYSICAL			
Thickness	EN ISO 2286-3	0.72mm	0.028inch
Mass per unit area	EN ISO 2286-2	209g/m²	6.16oz/yd²
Width		100-150cm	39-59inch
PERFORMANCE			
Coating Adhesion – warp	EN ISO2411-2	60N/50mm	13.5lbf/2in
Resistance to Water Penetration (Hydrostatic Head)	BS3424-26	>100kPa	>14.5psi
MVTR – Index method	BS 3424-34	20%	
MVTR – Payne Cup method	ASTM D1653	900g/m²/24hr	
MVTR	ASTM E96B	270g/m²/24hr	
MVTR	ASTM E96BW	500g/m²/24hr	
DURABILITY			
Breaking Strength – warp	EN ISO1421-1	725N/50mm	141lbf/2in
Breaking Strength – weft	EN ISO1421-1	240N/50mm	56lbf/2in
Breaking Extension – warp	EN ISO1421-1	140%	
Breaking Extension – weft	EN ISO1421-1	>250%	
Tear Strength – warp	EN ISO4674-1	55N	10.1lbf
Tear Strength – weft	EN ISO4674-1	70N	11.2lbf
Burst Strength	EN 12332-1	950N	213lbf
Accelerated Ageing	EN 12280-3	Equivalent >150 weeks	
WASHING			
Wash Test x5 washes at 95°C / 203°F	ISO 6330	No delamination	
Shrinkage - warp	ISO 6330 / 3759	4% change	
Shrinkage - weft	ISO 6330 / 3759	4% change	
FIRE RESISTANCE			
Fire Resistance	Cal TB117	Pass	
COLOUR FASTNESS			
Colour Fastness to rubbing	EN20105-X12	Wet 4/5, Dry 4/5	

▲ Internal test method derived from stated standard
* This is not a specification – typical values

What is Microclimate?

→ Microclimate is the management of heat, moisture and airflow.

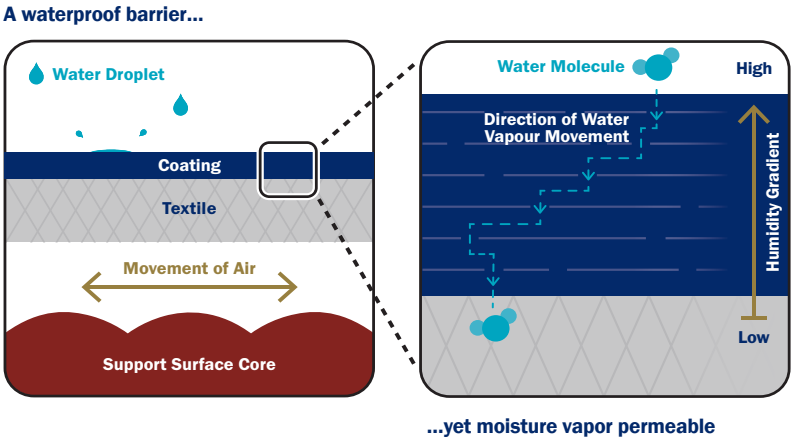
→ From a clinical perspective, this means the contact area where skin meets the support surface.

Explaining the Moisture Gradient

Why fabric choice is important for support surfaces

To help keep the sitter's skin cool and dry, it is important to consider the Moisture Vapour Permeability (MVP) or 'breathability' of the fabric.

How much it 'breathes' is determined by the Moisture Vapour Transfer Rate (MVTR), which essentially means how quickly moisture vapour travels through the fabric and away from the sitter's skin.



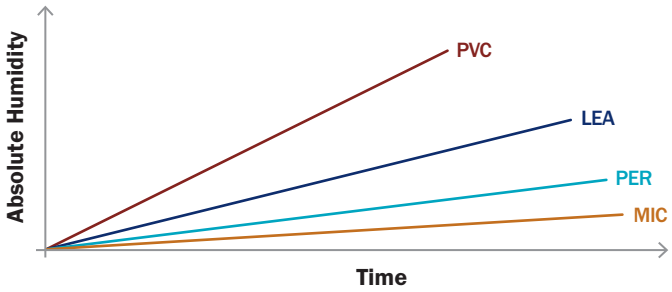
Measuring Microclimate

Microclimate is measured using heat and humidity sensors, which are placed at the skin / support surface interface.

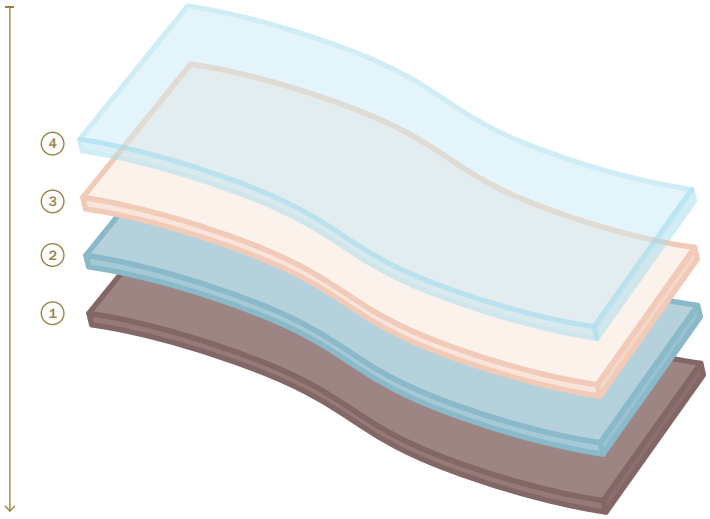
Over time, absolute humidity increases rapidly on a non-breathable surface, as shown on the graph. The more breathable the fabric, the cooler and drier the skin will be.

Ref: Haxby, R; Pearce, K; Williams, C (2019) Are you sitting comfortably? Studies into Dartex® polyurethane-coated fabric vs. vinyl (PVC). Available for download www.trelleborg.com/en/engineered-coated-fabrics/industries/healthcare-and-medical

ABSOLUTE HUMIDITY OVER TIME



The managment of heat moisture and airflow at the skin and the fabric interface is very important for keeping the sitter comfortable for long periods of time.



MICROCLIMATE LAYER 4

Antimicrobial additive to protect polyurethane coating, which lasts for the lifetime of the product

Flame retardant for regulatory compliance

Colour pigment

MICROCLIMATE LAYER 3

Breathable, protective Dartex® Microclimate coating to help maintain comfortable skin microclimate at contact surface

MICROCLIMATE LAYER 2

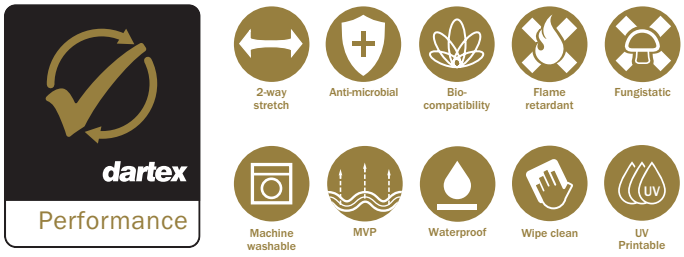
Strong, breathable adhesive for long product lifetime

MICROCLIMATE LAYER 1

Stretchy and strong substrate for pressure redistribution properties

The traditional upholstery choice – FR Treated Cotton

This product offers a light-weight 2-way stretch, FR-treated cotton textile for traditional upholstery.



PER694

The Dartex® Performance range combines maximum functionality with all round product performance, making it ideal for a wide range of seating applications.

Typical average across <10 batches
Product/36% PU: 64% PET

Composition: Coating / 100% Polyurethane

PROPERTY	TEST METHOD▲	METRIC*	IMPERIAL*
PHYSICAL			
Thickness	EN ISO 2286-3	0.51mm	0.20inch
Mass per unit area	EN ISO 2286-2	247g/m²	7.29oz/yd²
Width		151cm	59 inch
PERFORMANCE			
Coating Adhesion – warp	EN ISO2411-2	74N/50mm	16.6lbf/2in
Resistance to Water Penetration (Hydrostatic Head)	BS3424-26	>100kPa	>14.5psi
DURABILITY			
Breaking Strength – warp	EN ISO1421-1	276N/50mm	62lbf/2in
Breaking Strength – weft	EN ISO1421-1	148N/50mm	33lbf/2in
Breaking Extension – warp	EN ISO1421-1	48%	
Breaking Extension – weft	EN ISO1421-1	168%	
Tear Strength – warp	EN ISO4674-1	18N	4.0lbf
Tear Strength – weft	EN ISO4674-1	23N	5.1lbf
MVTR – Index method	BS 3424-34	10%	
MVTR – Payne Cup method	ASTM E96B	459g/m²/24hr	
MVTR	ASTM E96BW	102g/m²/24hr	
Abrasion / Hydrostatic Head after 100,000 cycles	EN ISO 5470-2	>100kPa	>14.5psi
Burst Strength	EN 12332-1	313N	70lbf
WASHING			
Wash Test x5 washes at 95°C / 203°F	ISO 6330	No delamination	
Shrinkage - warp	ISO 6330 / 3759	8.5% change	
Shrinkage - weft	ISO 6330 / 3759	2.5% change	
FIRE RESISTANCE			
Fire Resistance	Cal TB117	Pass	
	BS7176 Med Haz	Pass	
COLOUR FASTNESS			
Colour Fastness to rubbing	EN20105-X12	Wet 4/5, Dry 4/5	

▲ Internal test method derived from stated standard
* This is not a specification – typical values

The choice for an existing fabric – Fire Blocker

Lightweight (~145gsm) non-woven fabric which can be used loose or heat-laminated to a fabric.

For customers looking to meet fire regulations with an existing upholstery fabric, the Dartex® Fire Blocker is a polyurethane film that can be used as a barrier; either loose between the upholstery fabric and the foam, or directly heat-laminated to the back of the upholstery fabric.

The product acts as a barrier to the propagation of fire through to the upholstery components of a seat/cushion.

Composed of a synergistic blend of non-halogenated flame retardants, the purpose of the Fire Blocker is to minimize smoke and smoke toxicity should the seating product catch fire.

The Fire Blocker is supplied by the roll. Contact the sales team to find out more about our lamination options.

In a fire the product acts to remove heat by:

- Releasing non-flammable gases to dilute the fuel / oxygen around the flame
- Creating a char barrier to keep the flames away from combustible materials
- The Flame retardants act in both the solid and vapor phases

Trelleborg is a world leader in engineered polymer solutions that seal, damp and protect critical applications in demanding environments. Its innovative engineered solutions accelerate performance for customers in a sustainable way. The Trelleborg Group has local presence in over 40 countries around the world.

Speak to our team for more information:

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