

Waterproof breathable fabrics: balancing performance and environmental sustainability

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Abstracts

Waterproof breathable fabrics have gained huge popularity in a number of applications- including outdoor apparel, workwear and sportswear products- due to the levels of protection and comfort they provide. Today, the variety of waterproof breathable fabrics available is extremely broad, and includes coated textiles and laminates in a variety of fibre compositions. Consumers of waterproof breathable apparel are prepared to pay a premium for the best performing products but the market is not without its challenges. Competition in the market is fierce and there are issues associated with environmental sustainability. In particular, many waterproof breathable fabrics incorporate membranes and/or durable water repellent (DWR) finishes which are associated with chemistries based on polyfluorinated and perfluorinated compounds (PFCs), and these are considered to be harmful to human health and the environment. As a result, there has been significant pressure on manufacturers to develop safer alternatives without compromising on performance. Several companies have risen to the challenge, and a number of these have opted to use bio-based materials or take inspiration from biomimicry in developing environmentally sustainable DWR finishes. Some progress has also been made in developing environmentally sustainable membranes, some of which are made from recycled waste materials. This report provides a wealth of information on recent developments in the market for waterproof breathable fabrics, and discusses the opportunities and challenges facing producers and users. Topics explored in the report include: the development of waterproof breathable constructions; markets for waterproof breathable fabrics and apparel; waterproofness and breathability in performance apparel; testing standards for waterproofness, water repellency and breathability; environmental sustainability; waterproof breathable garments; and applications of waterproof breathable fabrics. The report also provides an outlook for the future and discusses the latest innovations in DWR finishes, waterproof membranes and fabrics, with particular reference to developments from a number of industry leading

companies including BenQ Materials, Bolger & O'Hearn, Directa Plus, Evolved by Nature, Green Theme Technologies, HeiQ, Huntsman Textile Effects, The North Face, Ventile, and W L Gore & Associates.

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Europlasma: PlasmaGuard S

Evolved by Nature: Activated Silk

Green Theme Technologies: EMPEL

HeiQ: HeiQ Eco Dry FW and DWR finishes which are resistant to dry cleaning

Huntsman Textile Effects: Phobotex RSY and Zelan R3

Schoeller Textil: 3XDRY Bio and ecorepel Bio

INNOVATIONS IN WATERPROOF BREATHABLE MEMBRANES AND FABRICS

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