

# Temperature Control Fabrics, Finishes and Materials: Optimising Wearer Comfort

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## Abstracts

Demand for clothing which helps the wearer to maintain a comfortable body temperature is increasing—reflecting a growing focus by consumers on comfort, health and well-being, and rising demand for apparel which helps them to feel comfortable while they are pursuing a broad range of activities. As a result, temperature control materials—which have traditionally been associated with sportswear and outdoor apparel—are being incorporated increasingly into a broad range of everyday products, including athleisure apparel, fashion apparel, sleepwear, underwear and workwear. A wide variety of temperature control fabrics, finishes and materials is now available, and the market is fiercely competitive. Innovation is key, and a number of companies are focusing increasingly on the development of dynamic temperature control technologies which can adapt their properties according to changes in environmental conditions and the body's microclimate. This report provides a wealth of information on the market for temperature control fabrics, finishes and materials, and discusses the latest innovations in this sector with specific reference to: dynamic temperature control; fabrics, finishes and materials which facilitate cooling; and insulating materials. Furthermore, the report includes information relating to: environmental sustainability; the physiology of temperature regulation; the role of clothing in temperature regulation; the thermal properties of fabrics; and applications of temperature control fabrics, finishes and materials.

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Fashion apparel

Footwear

Military apparel

Outdoor apparel

Sleepwear

Sportswear

Underwear and hosiery  
Workwear

## **STATIC TEMPERATURE CONTROL: INNOVATIONS IN INSULATING MATERIALS**

Freudenberg Performance Materials: comfortemp continuous padding insulation material made from interconnected fibre balls  
HDWool: HDWool  
Invista: insulating denim fabrics  
NIPI (Natural Insulation Products Inc): Thindown fabric  
Polartec: Polartec Power Fill  
Pontetorto and Vaude: Biopile fabric  
PrimaLoft: PrimaLoft Gold Insulation with Cross Core and PrimaLoft Silver Insulation  
Natural Blend  
Sympatex Technologies: new heating systems for workwear  
Teijin Frontier: Solotex Thermo fibre  
ThermalTech: Thermaltech Copper Core Yarn, Thermaltech Heating Yarn and Thermaltech  
Interlining Mesh  
Thermaltech Copper Core Yarn  
Thermaltech Heating Yarn  
Thermaltech Interlining Mesh  
Thermore: Thermore Freedom and Ecodown  
Yeti: Crystal Down and RedFlex fibre

## **STATIC TEMPERATURE CONTROL: FABRICS, FINISHES AND MATERIALS WHICH FACILITATE COOLING**

Coolcore: Natural Performance fabrics  
Devan Chemicals: BI-OME Quick Dry and Tones of Cool  
Nanotex: Dry Inside for cotton fabrics  
Teijin Aramid: Teijinconex Coolnex Super Wicking Fabric  
Teijin Frontier: knitted and laminated material for sportswear  
Thermaltech: Thermaltech Cooling Yarn

## **DYNAMIC TEMPERATURE CONTROL**

Cocona: 37.5 Technology  
Devan Chemicals: Thermic

Directa Plus: G+ (Graphene Plus)

HeiQ: HeiQ Smart Temp

Outlast Technologies and Thai Acrylic Fibre: Outlast acrylic fibre

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