



Change at
10°C

DIAPLEX[®]
Intelligent Material
Waterproof breathing fabric
Comfortable Temperature Memory

Waterproofness, breathability and anti-condensation characteristics
Intelligent Material

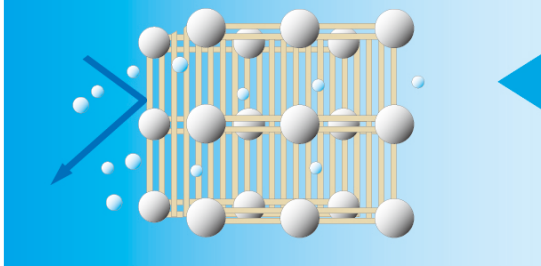
DiAPLEX®

Based on polyurethane-based shape memory polymers, DIAPLEX is a unique, new, high performance material that features temperature-sensitivity. This novel characteristic means that the material can be used to make comfortable garments that are watertight without clamminess. DIAPLEX is designed to react at a transition temperature to variations in the internal and external environment. When the temperature inside the garment reaches the transition temperature, the material automatically becomes more permeable to the water vapor.

DIAPLEX' s memory function mechanism by transition temperature

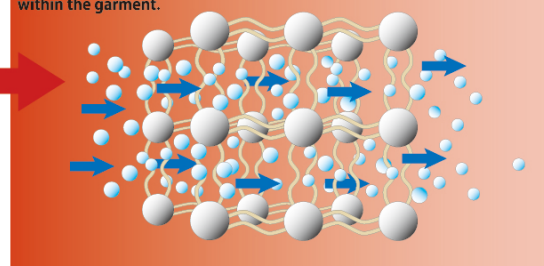
In cold conditions

At low temperatures the polymer molecular chains form a continuous surface that restricts the loss of body warmth by stopping the transfer of vapor and heat.



Temperature increases

At increasing temperatures the molecular configuration changes resulting in the formation of free space. This allows the transfer of heat and vapor from perspiration and helps to prevent discomfort and clamminess within the garment.



Extreme High Performance In Three Key Areas

DIAPLEX provide waterproof and breathable functions simultaneously, also features anticondensation characteristics. These properties provide garments made with DIAPLEX with high performance, making them suitable for wear in the widest possible conditions of use

Waterproof DIAPLEX laminate is a windproof non-porous membrane. Test results indicate that 20,000~40,000mm H₂O water pressure resistance demonstrates excellent waterproofness.

Breathability At predetermined ranges of temperature, the molecules make up the membrane to form free space. Molecules of water vapor are conducted through the free spaces and expelled to the outside, the temperature inside the garment reaches the transition temperature, 15,000g/m² · 24h moisture permeability, this material automatically becomes more permeable to water vapor.

Anti-condensation Due to the powerful moisture absorption characteristics of the DIAPLEX membrane, water vapor inside the garment is absorbed and diffused throughout the membrane and then emitted from the surface of the membrane. Condensation in clothes is a recognized hazard during severe weather conditions. Vapor permeable DIAPLEX, with its high moisture absorption-emission, is designed to alleviate this danger.

Six Supplemental Benefits

DIAPLEX not only possesses the three properties indispensable for heavy duty service, it also provides the heat retention, wind-proofing and water repellency required in severe weather conditions; while it also has stretchability, durability and a sensitively soft touch that make it suitable sportswear.

Stretchability DIAPLEX is easily capable of stretching to beyond twice its original dimensions. so it is suitable for extreme and strenuous conditions.

Soft Feel DIAPLEX is light in weight and soft to the touch.

High Durability DIAPLEX is non-porous, so there is no need to worry about it getting clogged, assuring a long period of high durability.

Windproof DIAPLEX laminate is a windproof non-porous membrane.

Heat retention DIAPLEX laminate is non-porous membrane. It provides heat retention by designed to react at a transition temperature which adapts the state of the material to variations in external environment.

Water repellent a surface treatment makes DIAPLEX highly water repellent.