

Title (en)
Flat textile material

Title (de)
Flächiges Textilmaterial

Title (fr)
Matériau textile plat

Publication
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Application
EP 00106794 A 20000330

Priority
DE 19923575 A 19990521

Abstract (en)

The textile fabric has components (12-18) to control its permeability, which are distorted by at least one environmental parameter. The permeable components (12-18) of the fabric work together to give passages through the material which are more or less opened or closed, and they can be of different materials and in different shapes. The control components (12-18) are of layers which are joined together, of materials with an expansion behavior according to the environmental parameter. The control components can be capsules/microcapsules with an elastic shell, and a filling which alters its vol. according to the ambient temp. The capsule fill is a fluid with a boiling point of 20-50 degrees C and preferably 30 degrees C. The capsules are bonded to the fabric fibers by bonding agent. The textile fabric has a number of offset openings in the fabric layers under the control components, which can be shifted between open and closed settings. The two fabric layers are bonded together locally, such as by welding, and the layer acts on the capsules which are embedded in openings in at least one of the two fabric layers. When the capsules are expanded, they fill the spaces in a woven fabric formed by fluid-permeable fibers. The control units can be material tongues (12-18), working with openings in the main fabric layer (20), which shroud the openings when fully extended. They can also be control filaments which extend through the fabric openings, composed of a number of fibers where at least some are distorted by an environmental parameter. The environmental conditions act on at least two fiber elements bonded together longitudinally and with different coefficients of longitudinal expansion. One filament element has a varnish coating, with a variable thickness round the filament circumference. Or the fibers which have a reaction to an environmental parameter are coated with a barrier layer, in a variable thickness round the circumference, and shrouds the fiber material at least partially against the ambient environment. The textile fabric is composed of warps and wefts, containing control filaments at least partially which alter their length according to at least one environmental parameter. The fabric can contain filling materials such as linseed oil varnish, cuprammonium, rubber or resin. The fabric has an embroidery, at least in part, where the control filaments are embroidered in place. At least part of the control element structure uses plastics monofilaments, and another part uses plastic multifilaments, preferably both of the same material.

Abstract (de)

Ein flächiges Textilmaterial (10) hat eine Ober- und eine Unterseite und dient insbesondere zur Verwendung als Bekleidungsstoff. Zur Steuerung der Durchlässigkeit des Textilmaterials (10) sind Steuerelemente (34, 36; 16, 18) vorgesehen, die durch einen Umweltparameter verformbar sind. Medien, deren Durchlässigkeit so gesteuert wird, sind z.B. Fluids oder Licht. Als Umweltparameter kommen z.B. die Temperatur oder die Luftfeuchtigkeit in Frage. Dadurch sind z.B. Textilmaterialien realisierbar, deren Atmungsaktivität mit der Körpertemperatur des Benutzers steigt.

IPC 1-7
A41D 27/28; **A41D 31/00**; **D06M 23/12**; **D03D 15/04**; **D02G 3/22**

IPC 8 full level
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CPC (source: EP US)
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