and an external absorption layer. US 5 635 201 describes the production of a wound dressing by application of a pressure-sensitive silicone gel adhesive layer to a porous substrate with retention of the porosity. Disadvantages of these solutions, as well as the elevated costs, are the lower bond strength as compared with acrylate-based pressure-sensitive adhesives, and the very low water vapor permeability. A consequence of this is that pressure-sensitive adhesive products based on silicone gel adhesives cannot be applied over their full area to the human skin, since otherwise, as a result of the absent breathability of these adhesive films, macerations may occur to the skin, especially in the course of prolonged wearing periods. From a technological standpoint, production of the interrupted layers of adhesive with these pressure-sensitive adhesives is very complicated, and has the effect of further impairing the bond strength in comparison to acrylate-based pressure-sensitive adhesives.

Against this background, an object of the present invention was to provide acrylate-based pressure-sensitive adhesives which have good bond strength to the human skin, possess high water vapor permeability even at relatively high layer thicknesses, exhibit good biocompatibility, and can be peeled from the human skin without damage even after prolonged wearing periods.

Summary

In one aspect, the present invention refers to the use of a polymeric, adhesive material capable of bonding to human skin, wherein the adhesive material is resulting 100 % from acrylate-based monomers, and wherein the adhesive material at a layer thickness of 250 µm exhibits a water vapor permeability of at least 1000 g/m^2 over 24 h and wherein water vapor permeability is determined according to ASTM E 96 by the "upright cup" method at a temperature of 23 °C and an atmospheric humidity of 50 % and according to DIN EN 13726-2 at a temperature of 37 °C and an atmospheric humidity of 18 %.

In another aspect, the present invention refers to a polymeric adhesive material resulting from 100% acrylate-based monomers, viz. 50 parts by weight of polyethylene glycol methacrylate 550 and 50 parts by weight of 2-ethyl hexyl acrylate and 0.75 parts by weight of tripropylene glycol diacrylate, wherein the adhesive material at a layer thickness of 250 µm exhibits a water vapor permeability of at least 1,000 g/m^2 over 24 hours and wherein water vapor permeability is determined according to ASTM E 96 by the "upright cup" method at a temperature of 23 °C and a humidity of 50 % and according to DIN EN 13726-2 at a temperature of 37 °C and a humidity of 18 %.

In yet another aspect, the present invention refers to a polymeric adhesive material resulting from 100% acrylate-based monomers, viz. 50 parts by weight of polyethylene glycol methacrylate 550 and 50 parts by weight of 2-ethyl hexyl acrylate and 0.50 parts by weight of tripropylene glycol diacrylate, wherein the adhesive material at a layer thickness of 250 µm exhibits a water vapor permeability of at least 1,000 g/m^2 over 24 hours and wherein water vapor permeability is determined according to ASTM E 96 by the "upright cup"

method at a temperature of 23 °C and a humidity of 50 % and according to DIN EN 13726-2 at a temperature of 37 °C and a humidity of 18 %.

In a further aspect, the present invention refers to a polymeric adhesive material resulting from 100% acrylate-based monomers, viz. 50 parts by weight of polyethylene glycol methacrylate 550 and 50 parts by weight of 2-ethyl hexyl acrylate and 0.25 parts by weight of tripropylene glycol diacrylate, wherein the adhesive material at a layer thickness of 250 µm exhibits a water vapor permeability of at least 1,000 g/m^2 over 24 hours and wherein water vapor permeability is determined according to ASTM E 96 by the "upright cup" method at a temperature of 23 °C and a humidity of 50 % and according to DIN EN 13726-2 at a temperature of 37 °C and a humidity of 18 %.

In another aspect, the present invention refers to a polymeric adhesive material resulting from 100% acrylate-based monomers, viz. 2 parts by weight of acrylic acid and 25 parts by weight of 2-ethyl hexyl acrylate and 25 parts by weight of polyethylene glycol methacrylate, wherein the adhesive material at a layer thickness of 250 µm exhibits a water vapor permeability of at least 1,000 g/m^2 over 24 hours and wherein water vapor permeability is determined according to ASTM E 96 by the "upright cup" method at a temperature of 23 °C and a humidity of 50 % and according to DIN EN 13726-2 at a temperature of 37 °C and a humidity of 18 %.

Description

It has been possible to achieve this object, in a way which is surprising and, for the skilled person, unforeseeable, by means of the pressure-sensitive adhesives of the invention.

These pressure-sensitive adhesives of the invention can be prepared by polymerization of the monomers in the