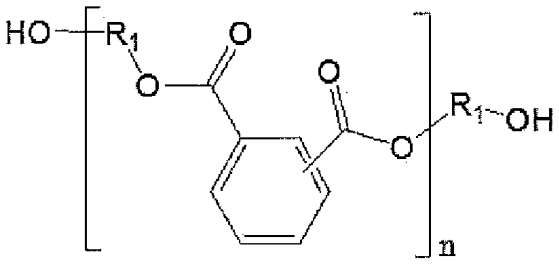
CHEMICAL RESISTANT POLYURETHANE ADHESIVE

Summary

In one aspect a pressure sensitive adhesive composition is described comprising a polyurethane polymer that comprises the reaction product of a polyisocyanate component and a polyol component; wherein the polyol component has a total solubility parameter ranging from 10 to 14 $(cal/cm^3)^{1/2}$. The polyol component typically has hydrogen bonding solubility parameter ranging from 3.5 to 6. The polyol component typically comprises a polyester polyol, a polycaprolactone polyol, a polycarbonate polyol, or a combination thereof. The polyol component, isocyanate component, or combination thereof comprises at least one six-membered (e.g. aromatic) ring structure. The polyol component, isocyanate component, or combination thereof further comprises alkylene groups having at least 4, 5, or 6 carbon atoms.

In one embodiment, the polyurethane polymer comprises the reaction product of a polyisocyanate component and a polyol component that comprises polymerized units of an ortho- or meta- phthalate and an alkylene group comprising at least 4 carbon atoms.

In one embodiment, the polyol component comprises a polymeric polyester polyol having the structure



wherein R_1 is independently an alkylene group comprising at least 4 carbon atoms, n is at least 2, and the ester group substituents are bonded to the ring at an ortho- or meta-position.

In another aspect a pressure sensitive adhesive composition is described comprising a polyurethane polymer, wherein the polyurethane polymer comprises the reaction product of a polyisocyanate component comprising a polyisocyanate that is a liquid at 25°C; and a polyol component comprising repeat units of an ortho- or meta-phthalate, and an alkylene group comprising at least 4 carbon atoms, wherein the pressure sensitive adhesive has a G' less than 1 MPa at 25°C and a frequency of 1 hertz.

Also described are articles such as laminating tapes and protective films as well as methods of bonding substrates with the pressure sensitive adhesive and laminating tape.

In another aspect a laminating tape is described comprising a substrate; and a layer of a pressure sensitive adhesive composition as described herein disposed on a major surface of the substrate.