most 150, at most 115, at most 110, at most 105 or at most 102. The resulting reaction mixture is applied to a bondline, joint, crack or other opening between two substrates (or within parts of a single substrate) and cured in place such that it adheres to the substrate or substrates and at least partially seals the opening and/or bonds the substrates together. Such an adhesive or sealant can be formulated with one or more fillers and colorants that are used to, for example, impart desired rheological and/or aesthetic characteristics. Curing is generally performed under ambient conditions, but elevated temperatures can be used.

Cured adhesives and sealants of the invention are often characterized in having a surprisingly high lap shear strength when measured according to ASTM 1002-01.

Coatings are formed by applying a reaction mixture to the surface of a substrate to form a film and curing the film on the substrate to form an adherent coating, the adherent coating typically becoming an exposed external surface of the coated substrate. The reaction mixture may contain all of components a), b-1) and b-2), which are reacted in one step to form the coating. Alternatively, the reaction mixture may contain a prepolymer or quasi-prepolymer as described before, and either or both of components b-1) and b-2). The application step is conveniently performed by methods such as spraying, brushing or rolling. Curing can be performed at ambient temperature or elevated temperature. The invention is particularly useful for producing thick protective coatings and/or to produce a soft surface. Coating compositions can be formulated to include pigments, dyes and other colorants as well as filler particles (which may also function as colorants), rheology modifiers of various types, and the like.

The following examples are provided to illustrate the invention, and are not intended to limit the scope thereof. All parts and percentages are by weight unless otherwise indicated.

Preparation of Isocyanate-Terminated Prepolymers

Various isocyanate-terminated prepolymers are made by reacting a 143-equivalent weight “liquid” MDI product with a polyether polyol. In each case, the polyisocyanate and polyol are combined without catalyst in a sealed dry container and stored at 70°C with occasional stirring until a constant isocyanate concentration is obtained. The characteristics of the polyether polyol and the resulting prepolymer are as indicated in Table 1.