

PhD thesis abstract

**Synthesis of photoreactive UV-crosslinkable solvent-based, acrylic PSA”**

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The aim of the work was to obtain photoreactive pressure-sensitive adhesives, applicable as various self-adhesive materials, and to evaluate their properties. Pressure-sensitive adhesives were obtained in a free radical polymerization reaction, then the adhesive coatings were cross-linked using UV-C radiation. The doctoral thesis included the syntheses of pressure-sensitive adhesives from acrylate monomers and a photoinitiator in a selected solvent, determining the composition of monomers, the weight fraction of photoinitiator type 2, the time of dosing the monomer mixture to the reactor in order to obtain the best product. As a result of the conducted research, the influence of the structure and amount of raw materials (monomers, photoinitiators), i.e. functionality, chemical structure, and presence of additional functional groups, on the self-adhesive properties of the produced adhesives was determined. Then, self-adhesive materials for various applications were made (single-sided, double-sided, carrier less adhesive tapes, labels, medical plasters), the basis weight of the adhesive composition and the dose of UV radiation were determined.

In the first part of the work, the literature was reviewed, issues concerning the types of pressure-sensitive adhesives, selection of monomers, photoinitiators were presented and self-adhesive and functional properties were briefly described.

The second part of the work covered the characterization of the reagents used, the course of the research, research methods, the results obtained and discussion. The last part describes the conclusions regarding the influence of the type and amount of specific acrylate monomers, their modifications, the dose of ultraviolet radiation used for crosslinking and the self-adhesive properties of the obtained coatings.

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