Synthesis of pressure sensitive adhesive using emulsion polymerization of core-shell technique, effect of acrylic acid monomer on Shear strength

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Pressure sensitive adhesives (PSAs) are viscoelastic materials that can adhere strongly to solid surfaces upon application of light contact pressure and short contact time. PSAs are used for many applications (e.g. tapes and labels) and can be obtained using different technologies such as emulsion [1]. "Recently, waterborne PSAs have received much attention from both industry and academia as a means for complying with environmental regulations" [2]. In this paper, different values (0.56, 1.12, 1.67 and 2.21 wt%) of acrylic acid monomer have used in the preparation of the adhesive. The shear strength of the obtained adhesive increased (from 397 kPa to 501 kPa) with increasing acrylic acid concentration from 0.56 wt% to 2.21 wt% which studied (Fig. 1). Improvement of the shear strength with addition of the acrylic acid could be due to presence of COOH polar group affected on the adhesion of the PSAs [3].

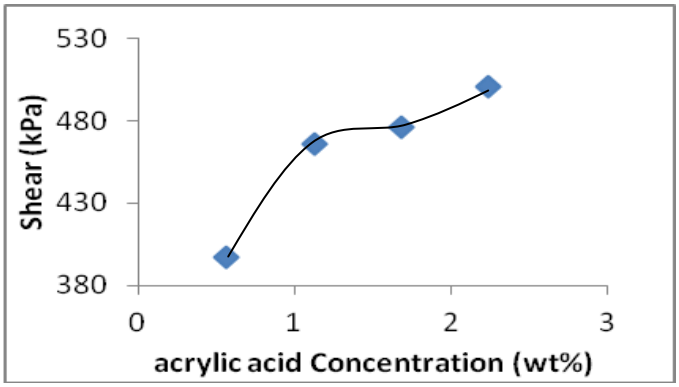

Fig. 1 Effect of acrylic acid concentration on shear strength of PSAs.

References

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