It´s hotting up

DYNACOLL®. Development of first flame retardant polyester

In the past, adhesive formulators faced the challenge of developing their reactive hot melts not only with the unique adhesive properties required for the variety of application areas but also to take account of the increasing secondary demands with regard to fire protection properties in their formulation.

Up to now, they met this challenge by adding flame retardants. But these additives usually had an adverse effect on the adhesion properties of the adhesive formulation.

A product innovation of Adhesive Resins Product Line is offering help. The development of a polyester polyol with inherent flame retardant of the DYNACOLL® product family, will not only save a formulation step for adhesive manufactures! Furthermore the polymer designers of Evonik have significantly improved the adhesive properties of the reactive hot melt compared to additive formulation (cf. Figure 1). Another positive effect is that the chemical resistance of the reactive hot melt is significantly improved compared to additive formulation (cf. Figure 2).

The prototype developed by Evonik is a liquid, high-viscous polyester of medium molecular weight (3,000–4,000 g/mol), which imparts extreme flexibility to the reactive hot melt.

Evonik has filed a patent application for this functional polyester.

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Figure 1

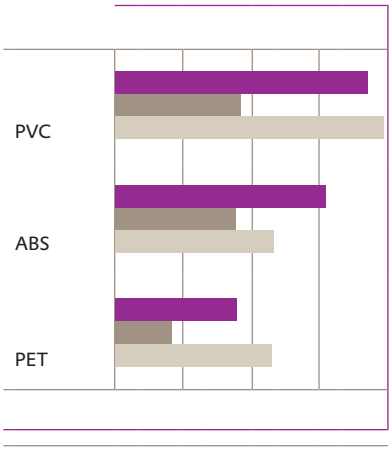

Figure 2

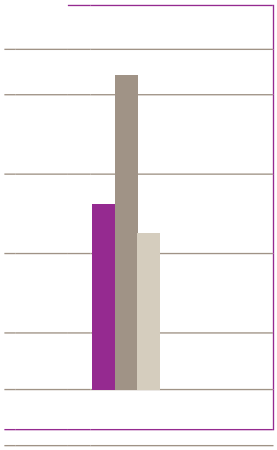

Figure 1: Comparison of the adhesion properties on different substrates

Figure 2: Comparison of the soluble components of reactive hot melts

Reactive hot melts based on

- Polyesters with inherent flame retardant
- Polyesters with flame retardant additives
- Conventional polyesters

Flame-retardant adhesives – Why?

Even non-flammable materials can be rendered flammable by bonding materials that use a standard adhesive. This is why, in addition to adhesive properties, high flame resistance according to DIN 4102 and UL-94 is so often a requirement for an adhesive in a variety of industries. Demand is particularly high for:

Public buildings: Technical textiles (e.g. curtains, carpeting)

Public transport: Textile adhesives in vehicles

Aircraft construction: Bonding materials for textiles and leather

Clothing industry: Lamination of protective clothing/outdoor clothing

Boat building: Lamination of paneling and textile adhesives