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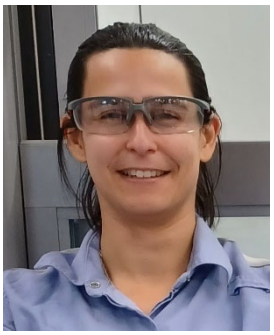

INNOVATIVE POLYMERS FOR HOT-MELT ADHESIVES IN MATTRESS APPLICATIONS AND FURTHER PSA APPLICATIONS

Hot-melt adhesives are commonly used within the mattress industry enhancing the mattress quality, the streamline production and contributing to making durable and comfortable end products. This is possible thanks to, for instance, their fast curing upon cooling, strong adhesion between different materials, versatility, flexibility or ease of application. This allows the bonding of different internal layers, the sealing of the edges or the lamination of different materials together.

Focusing on the bonding of internal layers of the mattress made of polyurethane foam, elastic parts and fabric, hot-melt adhesives must fulfill some requirements such as no odor nor color, good thermal stability, excellent adhesion to polyurethane foam, sprayable, short open time, flexibility and low tack. Additionally, based on sustainability and environmental regulations, it is desirable that the used polymer in the adhesive formulation is compatible with biobased resins.

In that sense, we present a new linear hydrogenated styrene-based copolymer (Dyne 174) with a 30% styrene content and high melt flow index (25 g/10 min @ 230ºC/2,16kg). Dyne 174 is compatible with biobased tackifier resins in the formulation of hot-melt adhesives. Hot-melt adhesives formulated with this Dyne 174 show suitable viscosity for spray application of the hot-melt adhesive in polyurethane foams of different densities. Adhesion tests on those substrates have been done showing excellent adhesion, foams were broken prior to adhesive detachment. Additionally, the formulated hot-melt adhesives show good thermal resistance, good transparency and zero tack when cooling down, hence avoiding disturbing noises of the mattress.

Additionally, thanks to its characteristics, Dyne 174 is suitable for the formulation of hot-melt PSA for hygienic applications, more particularly for the elastic part of hygiene products such as diapers. Good processability at low temperatures, and a good balance between adhesion and mechanical properties make Dyne 174 an excellent opportunity for the formulation of HMPSA.