



### **Latest innovations in polyurethane coatings [1 June 2011]**

On 24-26 May, the city of Frankfurt hosted [Tech Textil 2011](#), an international trade fair devoted to textiles. Tech Textil is a platform for companies to showcase the latest innovations in textile production. This time around the main surprise came from new polyurethane coatings.

The Coating covers a surface (substrate) in order to improve the substrate's properties, such as appearance, adhesion, wettability, corrosion resistance, wear resistance, and scratch resistance. The process of coating has existed for thousands of years. Ancient Egyptians used varnishes and enamels based on beeswax, gelatin and clay, at least as early as 3000 BC. Over the years, traditional coating has been replaced with an advanced thin film layer, which ranges from fractions of a nanometer (monolayer) to several micrometers in thickness. Coating is essential for a number of industrial and every day products. Unsurprisingly, some of the best coating layers are polyurethane films.

The latest evidence of this was provided by scientists from Epurex Films, a subsidiary of Bayer MaterialScience. They presented LPT 5901, a polyurethane hot-melt adhesive film, which could become a new standard for thermal coatings. This thin polyurethane film is easy to transport and simple to apply on any type of material (versatility is a key property for flexible materials). With application and cross-linking process over, PU film shows excellent levels of thermal resistance. This innovation allows polyurethane film to be used in a wide range of applications, from key rings to thermal protective clothing, such as fire-fighting suits.

Besides textile, Epurex films presented coatings that could be used for a broader range of outdoor products. The new thin film made of special thermoplastic polyurethane that is transparent, waterproof and abrasion resistant, would bring immense benefits to appliances which are under constant tear and wear. It could typically be used for wind turbine rotors, which require transparent coating. The new polyurethane film is also perfect for textiles such as awnings, life vests and clothes with reflective stripes.

From protecting fire-fighters to extending the lifetime of wind turbines; the latest PU coating innovations are another example of how polyurethanes contribute to improving lives and protecting the planet in new ways every day.