

FINEST SILK – PUREST GOLD



Problem – Challenge

Until recently only a very old method to produce gilded yarn was available: the fiber was wrapped by a metal ribbon. But these yarns were rough, not easy to handle and needed a lot of gold.

Textile specialists at Empa in St Gallen had been researching for several years to find a method of finely dividing titanium, aluminium, steel, copper, silver and finally gold and then allowing these powdered metals in atomic form to rain onto polyester fibers. Together with three partners from industry Empa started a CTI-Project to make this technology market-ready.

Solution

The plasma coating plant, which is about as large as a household refrigerator, can be found today on the premises of the Tersuisse spinning mill in Emmenbrücke. Inside the apparatus a piece of gold is bombarded with fast moving argon ions which knock atoms off the metal surface. These gold atoms fly off and land on a polyester fiber which is slowly pulled through the machine. This is the beginning of the production process which for the first time in the world creates a textile material permanently coated with a durable layer of gold. The precious metal remains attached to the fiber even when it is rolled, kinked, woven in a loom and given a final wash.

Nowadays production in the coating plant has reached a stable level. The first kilometer was generated in the summer of 2011 and in 2012 production is expected to increase further. Further handling of the fiber is done by two project partners, the Weisbrod-Zuerrer AG in Hausen am Albis and the embroidery firm Jakob Schlaepfer in St. Gallen.

Traditional method



New coating system

