

SWISS CLUSTER – INNOVATIVE COATING SYSTEM

Problem – Challenge

Thin film multilayer structures can combine the properties of different materials in a complementary way; they are currently a research area of great interest. As different coating techniques need to be combined to produce multilayer structures, the product to be coated needs to be moved back and forth between different processing chambers, and the integrity of the high vacuum atmosphere is broken in every cycle. Accordingly, the conventional preparation procedure is time and cost intensive.

Solution

The Empa Spin-off Swiss Cluster AG offers an innovative coating system named SC-1.

The system combines two coating methods in one device, without moving the substrate: atomic layer deposition (ALD) and physical vapor deposition (PVD). It allows to prepare multilayer structures consisting of alternating thin layers to be produced quickly and cost-effectively. The technology was developed in Empa's Mechanics of Materials and Nanostructures laboratory, and Empa filed a patent application for it and licensed the technology exclusively to Swiss Cluster AG in 2020.

Currently, a team of six is also designing and constructing adjusted systems for large corporate customers based on ALD and PVD technologies. Selling individual components, providing technical support and research support services round out the young company's portfolio.

