



NEW SHAPEABLE MATERIAL FOR CUSTOMIZATION OF EARMOLDS

Problem – Challenge

The Adolphe Merkle Institute (AMI) and Sonova AG have teamed up to develop a new polymer blend with shape memory characteristics. Heating the material allows it to take the shape of any object, at body temperature, which makes it interesting for the customization of bio-medical applications. This process can be repeated many times, making the material easily adaptable when conditions change. The material can also be 3D printed. Sonova is currently creating prototypes with this newly developed material to validate the benefits of a novel customization approach for hearing aids. To bring the polymer to market, the Adolphe Merkle Institute partnered with Covestro GmbH, which is now upscaling production and can provide test samples to interested customers.

The project was funded by the Swiss Innovation Agency Innosuisse. (Project link: [In-situ customization of hearing-aid parts with new shape memory polymers – Participants \(admin.ch\)](#))

Solution

AMI is a competence center of the University of Fribourg that focuses on research in the field of soft nanomaterials. The institute is organized in four research groups with complementary expertise: Bio-Nanomaterials, Soft Matter Physics, Biophysics, and Polymer Chemistry & Materials. Additionally, the Institute offers high quality services for the analysis of nanomaterials through its Swiss NanoAnalytics platform (<https://www.ami.swiss/en/nanoanalytics/>).

This innovation was developed by AMI's Polymer Chemistry & Materials group. The group focuses on the design, synthesis, and investigation of structure-property relationships of novel functional polymers and has expertise in stimuli-responsive polymers (such as light-responsive polymers, debond-on-demand adhesives, and mechanically responsive polymers), nanocellulose based materials, biocompatible polymers, and bioinspired materials.

