

## Effectively sealing textile fluid bags

### Field of application

The inventive sealing method for containers made of multi-layer, woven fabrics makes it possible to use these 3D shape-optimizable and flexible components in many different fields – from the construction and clothing industry to the medical technology sector.

These so-called 'fluid bags' are ideal wherever liquids have to be stored or transported in a space-saving manner. For example, light-weight solar collectors or sound reflectors could be used in the building industry. In the medical technology sector, one could think of special bags as an alternative solution to the common foil sachets. These bags could be designed as clothes-integrated elements – in cases of long-term medication, for instance. Ready-made vests or bandages with integrated fluid bags offer patients greater mobility. For the clothing industry, vests are conceivable that ensure functionality and mobility for sports or safety wear.

### State of the art

Today, flexible containers for liquids are made of foil materials. Fabrics protect these foil bags, if they need to be protected from excessive strain, for example. Present techniques are limited by complex manual manufacturing steps and production-related restrictions in terms of bag geometry. For one-piece woven fabrics there are highly automated manufacturing processes for 2D and 3D shaped air reservoirs available, from the production of side airbags for the automotive industry. Long-lasting sealing of these reservoirs used to be a major challenge, in particular when it comes to low-cost production.

### Innovation

Scientists at the Institute for Lightweight Structures and Conceptual Design, Stuttgart University, have succeeded in developing a process for sealing multi-layer, woven containers such as airbags. Liquid-fillable textile bag fabrics in the required two- and three-dimensional shape can thus be produced and finished in a single manufacturing process.

Seam sealing of the fabric layers that form the container used to be particularly challenging. This invention allows users to close the existing micropores and at the same time create a circumferential sealing channel.

### Patent portfolio

Several patent applications (DE, EP & US) are pending.

[www.inventionstore.de](http://www.inventionstore.de): Free e-mail service to access the latest IP-protected top technologies.  
Copyright © 2018 Technologie-Lizenz-Büro (TLB) der Baden-Württembergischen Hochschulen GmbH

### Your benefits at a glance

- ✓ Flexible, light-weight and 3D shaped containers
- ✓ Excellent seam sealing for woven containers
- ✓ Sealed containers for gases and liquids
- ✓ Optimization of geometry, function and production is part of the design process
- ✓ Production, sealing and filling executed in highly automated and coordinated production steps
- ✓ Further processing as part of existing production processes in the textile industry (sewing, gluing & finishing)

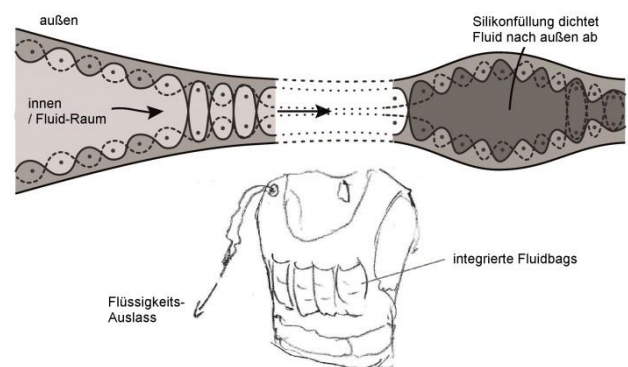


Figure: Scheme of the sealing strategy (top) and sketch of use case: vest / bandage with integrated fluid bags and outlet (bottom).

### Technology transfer

Technologie-Lizenz-Büro GmbH is responsible for the exploitation of this technology and assists companies in obtaining licenses.

### Contact

Anne Böse, Business Development  
[Boese@tlb.de](mailto:Boese@tlb.de)  
 Technologie-Lizenz-Büro (TLB)  
 der Baden-Württembergischen Hochschulen GmbH  
 Ettlinger Straße 25, D-76137 Karlsruhe  
 Tel. 0721 79004-0, Fax 0721 79004-79  
[www.tlb.de](http://www.tlb.de)

Reference number: 14/036TLB