

## Healthcare Applications

### Wound Closure

Porex engineers enhance a fluid-based device used for wound closure with a specially formulated wicking material. This development has led to the availability of additional, more effective wound closure treatments in the healthcare field.



### Design Challenge:

Medical fluids are increasingly being used for wound closure. Due to the increased demands, the medical market sought enhancements to an FDA-controlled device used in the procedure. The device includes a topical adhesive inside a glass ampoule, designed to be ruptured within an exterior tube and applied via a porous plastic applicator/wick. Porex was asked to design a porous plastic solution that could 1) filter out glass fragments from the shattered ampoule, 2) wick the medical fluid from the interior cavity of the outer tube to the tip of the applicator, 3) minimize final fluid retention in the pores of the applicator, 4) serve as the applicator tip, 5) support a press-fit automated production scheme, and 6) support ETO sterilization.

### Solution

Porex's vast experience in wicking applications facilitated material selection for this project. After establishing pore size requirements based on the glass filtration requirement, Porex engineers worked with the customer to determine the optimum wicking/applicator performance, which resulted in the development of a polyethylene-based formulation. The material was further adapted to provide the necessary pliability and strength characteristics to ensure a good press-fit seal to the interior surface of the exterior tube. Finally, the pore size and the pore volume were optimized to produce a part with the proper wick rate and final fluid retention levels.

### Results

Porex's enhancements to the fluid-based wound closure device successfully addressed all of the design objectives. In addition, these development efforts have contributed to the availability of more effective wound closure treatments.

*By combining ideas, know-how and proven results with the highest standard of innovation and excellence, POREX Porous Media provides unique solutions for various applications.*



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[www.porex.com](http://www.porex.com) 800.241.0195

#### Porex Technologies

500 Bohannon Road  
Fairburn, GA 30213 USA

E-mail: [porous.info@porex.com](mailto:porous.info@porex.com)

770.964.1421 Phone  
770.969.0954 Fax

#### Porex Technologies GmbH

Sales & Marketing Europe  
Strangenhäuschen 30  
52070 Aachen, Germany

E-mail: [info@porex.de](mailto:info@porex.de)

+49 241 910525-0 Phone  
+49 241 912426-16 Fax

#### Porex Technologies Sdn Bhd

Lot P.T. 74, Jalan Hulu Tinggi 26/6  
Seksyen 26, Sektor A  
Hicom Industrial Park  
40400 Shah Alam,  
Selangor, Malaysia

E-mail: [sales@porex.com.my](mailto:sales@porex.com.my)

+603 3343 4828 Phone  
+603 3341 3308 Fax