



## Press Release

July 13, 2021

Henkel and Aqua Membranes improve efficiency of spiral-wound elements for reverse osmosis water filtration

### **Henkel resin prints directly onto flat sheet membranes, eliminating plastic mesh feed spacers**

Düsseldorf, Germany – Henkel Corporation and [Aqua Membranes](#) are introducing a revolutionary Printed Spacer Technology® for spiral-wound element design and manufacturing. The new technology eliminates the need for conventional plastic mesh feed spacers by printing unique spacer patterns directly onto delicate flat sheet membrane materials. These patterns have the potential to reduce fouling and scaling in the element and offer a more open water flow channel, which reduces energy consumption during the water filtration process.

Henkel representatives will be helping to introduce the technology, along with samples at Aqua Membranes' booth #102 at the 2021 Membrane Technology Conference & Exposition on July 19 through 22 in West Palm Beach, Florida.

"Our new resin and process technology, coupled with Aqua Membranes' print patterns, enable spiral wound element producers to print directly onto the membrane, as well as print a variety of patterns and print heights over the entire surface area of a membrane leaf", explains Dan Oberle, Henkel's Global Business Development Manager. With more open patterns, water flows more freely, reducing wasted energy. Printed feed spacers will produce more clean water, faster and at a lower cost than conventional spacer technology. "We are confident this development will have a significant impact on the global water crisis".

Conventional extruded plastic mesh spacers take up valuable space between membrane leaves. Their closed structure creates a demanding flow path that requires high pressure to move water through an element, which must be frequently cleaned due to fouling. By

printing feed spacer patterns directly onto flat sheet membrane, element manufacturers can reduce the thickness of each spacer, fitting more layers into the element. This expands available surface area inside the membrane element by 20 to 40 percent, thereby increasing the total permeate flow. Alternatively, this new technology can radically reduce energy consumption by keeping larger gaps and more open flow channels, resulting in significantly lower pressure drop. "R&D engineers are realizing that this design flexibility is a major value contributor," adds Oberle.

"Unlike traditional membrane spacers that trap particles and biofilm within the mesh and create high pressure drop, our 3D-printed spacers can optimize flow patterns and turbulence through the membrane element," said Craig Beckman, CEO of Aqua Membranes. "This optimization leads to lower energy consumption, a reduced system footprint, improved cleaning, and potentially longer element life. Printed feed spacers are superior to mesh spacers because they lower the costs to buy, operate, and expand these systems."

"This technology is the result of many years of research and development work. The question has not been 'why' printed spacers, but rather 'how'. We now have a working solution that answers that question", said Oberle.

To learn more about this technology or how Henkel serves the water filtration industry, contact us [here](#) or visit [Henkel filtration solutions](#).

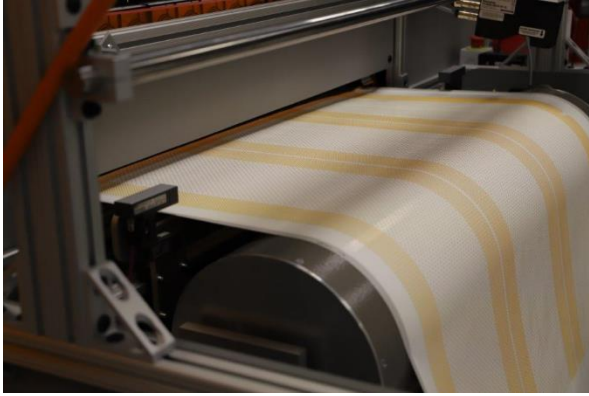
#### **About Henkel**

Henkel operates globally with a well-balanced and diversified portfolio. The company holds leading positions with its three business units in both industrial and consumer businesses thanks to strong brands, innovations and technologies. Its Henkel Adhesive Technologies business unit is the global leader in the adhesives market – across all industry segments worldwide. In its Laundry & Home Care and Beauty Care business units, Henkel holds leading positions in many markets and categories around the world. Founded in 1876, Henkel looks back on more than 140 years of success. In 2020, Henkel reported sales of more than 19 billion euros and adjusted operating profit of about 2.6 billion euros. Henkel employs about 53,000 people globally – a passionate and highly diverse team, united by a strong company culture, a common purpose to create sustainable value, and shared values. As a recognized leader in sustainability, Henkel holds top positions in many international indices and rankings. Henkel's preferred shares are listed in the German stock index DAX. For more information, please visit [www.henkel.com](http://www.henkel.com).

**Photo material is available at [www.henkel.com/press](http://www.henkel.com/press)**

Contact      Sebastian Hinz  
Phone        +49 211 797-85 94  
Email        [sebastian.hinz@henkel.com](mailto:sebastian.hinz@henkel.com)

® Printed Spacer Technology is a trademark of Aqua Membranes



The automated system print the feed spacer directly on to the flat sheet web. In this image, three 1812 patterns are printed side by side.



Automated printing and verification methods ensure high quality, accuracy, repeatability; within automation element production speeds.