

S1.3.4 BLISTER FREE MEMBRANE BONDING IN SPIRAL WOUND ELEMENTS -- ADHESIVE STRATEGIES TO IMPROVE RELIABILITY AND LOWER COST

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With the accelerating growth of spiral wound filtration elements in the water, food and beverage industries, design and process engineers are continually challenged with producing more efficient, reliable and effective membranes. Adhesive chemistry, application, and assembly techniques can substantially affect the overall performance of the membrane.

This paper addresses common adhesive questions and issues, including bondline blisters, membrane surface area optimization (increase available membrane area), throughput speeds, and chemistry validation processes.

Since all membranes are not created equal, it is critical to understand the parameters of each unique membrane, its production process and its operating environment. Adhesive design, in conjunction with the membrane element design, addresses issues such as bondline blisters, flux drop, and manufacturing throughput speeds, ultimately having significant impact on the total cost of produced permeate.

Adhesive suppliers' product chemistry and technology expertise is an important component of an element design and manufacturing process. If the adhesive is an afterthought, so too will be the performance of the element. The membrane technology experts are in early on the project development cycle, as are the manufacturing technology engineers. It is equally important to have early engagement with your adhesive experts.