

S1.5.2 Improving the Performance of Spiral Element Tangential Flow Systems while Reducing Operating and CapEx Costs

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Tangential flow spiral element systems are used in a wide variety of applications from Reverse Osmosis Sea Water treatment, Dewatering of Electrocoat Paint, Diafiltration, Food Clarification, and Concentration of Whey, etc. There are, however, many other potential applications that this element and system format are not used due to their financial or operational disadvantages versus competitive technologies or element formats. The operational disadvantages are often caused by high feed solids, higher operating pressures, or in ability to be properly sanitized or sterilized. The financial disadvantages are typically due to low recovery rates, high operational costs and capital requirements.

This paper will deal with a new class of spiral element that can operate at high feed solids, higher operating pressures, and with improved clean ability and sanitize or sterilize ability. In addition, the extremely high flux rates decreases the capital and operational costs significantly while greatly minimizing fouling extending membrane life. Examples of system designs using both the current standard and the new high flux, low fouling designed spiral element will be highlighted.