

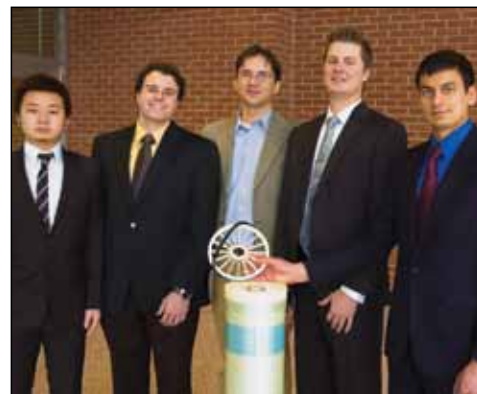
# DOW CHEMICAL (DOW WATER AND PROCESS SOLUTIONS): BRINE SEAL APPLICATION FOR REVERSE OSMOSIS ELEMENTS

**D**ow Water and Process Solutions (DW&PS) leads the market in producing reverse osmosis membrane elements for water and fluid processing. A subsidiary of The Dow Chemical Company formerly known as FilmTec Corporation and founded in 1981, DW&PS is located in Edina, Minnesota, 15 minutes away from the heart of Minneapolis. To uphold Dow's promise to improve consideration of the human element, DW&PS produces filters to serve a wide variety of industrial, municipal, commercial, and home drinking water applications.

Product quality is essential and cannot be achieved without an efficient and healthy workforce; Dow holds safety as a top priority. A key aspect of the eight-inch FILMTEC™ reverse osmosis (RO) membrane element, a popular Dow product, is the strategic placement of brine seals to force the stream water through the membrane and prevent leaks. Currently, application of this seal is conducted with improper hand tools and has ergonomic and safety hazards, such as a risk of repetitive motion injuries to the wrist.

In order to abide by Dow's safety standards, the MSU design team has been challenged to develop an automated or semi-automated tool to assist operators with the application of the brine seal without the creation of new safety and ergonomic hazards. The tool should provide a benefit to the user and improve the current working conditions. At the end of the project, the tool will be integrated into DW&PS' manufacturing process; it has the ability to impact all of Dow's industrial reverse osmosis product lines by creating a safer work environment.

...The Dow Water and Process Solutions (DW&PS) Student Design Team



Water  
& Process  
Solutions



Mr. Alderman



Ms. Peacock



Prof. Priezjev

Safety is a critical value at Dow Chemical and sustaining a safe manufacturing environment is our first priority. This project scope impacts all production of Dow's industrial and municipal reverse osmosis product lines, creating a safer work environment. Significant business benefit from the project is derived through improved safety, in addition to potential labor cost savings.

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