

LANXESS offers new Lewabrane elements for water treatment

### **Membrane technology for water with fouling potential**

#### **LewaPlus design software now also for reverse osmosis with downstream ion exchanger**

**Leverkusen** – Specialty chemicals company LANXESS is offering three new types of Lewabrane membrane separation elements for reverse osmosis. The new products are available now for waters with strong fouling potential. The new membranes have a surface area of 37.2, 34.4, and 8.4 square meters (equivalent to 400, 370, and 90 square feet). Lewabrane RO B400 FR and Lewabrane RO B370 FR have a diameter of 201 millimeters (8 inches), while Lewabrane RO B090 FR 4040 has a diameter of 101 millimeters (4 inches).

All Lewabrane products comprise a polyamide composite membrane, wound in several layers to form a spiral wound element. “Our membrane separation elements are characterized by a high degree of polymerization and a low surface charge, which in itself reduces the accumulation of dissolved solids at the membrane surface,” says Alan Sharpe, head of the RO Membrane Strategic Project at LANXESS’ Ion Exchange Resins business unit. Furthermore, a special feed spacer has been incorporated in the newly developed FR types. “The new membrane elements were designed to generate greater turbulence in the feedwater channel, meaning that less solids accumulate on the membrane surface,” Sharpe explains.

In membrane separation, fouling describes the process by which dissolved solids (colloids) form deposits on the membrane surface, leading to a reduction in separation capacity. The new FR elements from LANXESS reduce this kind of fouling, thereby extending maintenance intervals and increasing output capacity.

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The separation elements, manufactured at LANXESS' Bitterfeld site in Germany, were engineered specifically for industrial water treatment. The fields of application include the desalination of brackish and low-salinity water with a high potential for organic or biological fouling.

### **LANXESS expands software tool for water treatment**

The Ion Exchange Resins business unit has expanded its design tool for industrial water treatment. Using LewaPlus, complete systems can now be designed, for example, employing different separation processes. Dr. Jens Lipnizki, Membrane Applications Manager at ION, explains: "Until now, LewaPlus was only capable of engineering reverse osmosis and ion exchange systems separately. With the expanded version, a reverse osmosis process can now be engineered with a downstream ion exchanger and, if necessary, even with an intermediate degasification system." This is a typical application for water treatment in power plants.

LewaPlus consequently is the only software application that can design an entire reverse osmosis process with downstream ion exchange, and the only one that can integrate in its calculations post-treatment involving a degasification system or chemical addition. Some industrial applications require the addition of salts to reduce the corrosive properties of the water or to adjust the pH. "Ultrapure water, for example, literally extracts ions from the metal surfaces in a water pipeline, which leads to oxidation and visible damage in the form of corrosion," explains Lipnizki.

### **Seamless design**

The LewaPlus design software is a comprehensive tool for engineering systems that use Lewatit ion exchange resins (IX) and Lewabrane membrane elements for reverse osmosis (RO). The application calculates RO system configurations and their output, including feed pressure and permeate quality. "The combination of

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membrane separation and ion exchange ensures that efficiency and economy go hand in hand. The membrane elements deliver a stable, lower-salinity permeate to minimize the salt load in downstream processes, thus helping to achieve an efficient price-performance ratio," Sharpe explains.

For detailed information on the LewaPlus design software and to download the application free of charge, go to [www.lewabrane.com](http://www.lewabrane.com).

LANXESS is a leading specialty chemicals company with sales of EUR 8.8 billion in 2011 and currently around 17,100 employees in 31 countries. The company is currently represented at 48 production sites worldwide. The core business of LANXESS is the development, manufacturing and marketing of plastics, rubber, intermediates and specialty chemicals. LANXESS is a member of the leading sustainable indices Dow Jones Sustainability Index (DJSI) World and FTSE4Good as well as the Carbon Disclosure Leadership Index (CDLI).

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### **Forward-Looking Statements.**

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