

### In the land of the pharaohs

- **Egypt's leading fertilizer producer backs LANXESS water treatment technology**
- **Lewatit and Lewabrane to treat Nile water**
- **Chemicals for resin bed regeneration significantly reduced**

**Cologne** – Ion exchange resins and membrane elements from LANXESS work virtually “hand in hand” in the new water treatment plant of Egypt's leading fertilizer manufacturer Alexandria Fertilizers Co. (Alexfert) in Alexandria. The brackish water is pre-treated using reverse osmosis (RO) with a total of 228 Lewabrane B400 FR elements and fully demineralized with Lewatit MonoPlus ion exchange resins. In addition to achieving the required final demineralized water conductivity of below 0.08 µS/cm (microsiemens per centimeter) and 2 ppb SiO<sub>2</sub> (silicium dioxide), combining the two technologies also provides a stable and reliable process.

“The membrane elements from LANXESS exhibit an excellent level of performance with the difficult Nile surface water. The rejection measured even exceeds expectations”, says Alexander Scheffler, Director Membrane Business at LANXESS's Liquid Purification Technologies (LPT) business unit. As Ashraf Aly Mostafa, Project Manager at Alexfert remarks: “Using reverse osmosis for pre-treatment means we can reduce the consumption of specific chemicals for resin bed regeneration by around 60 percent.”

#### **Application and system configuration**

The new brackish water reverse osmosis (BWRO) plant in Alexandria is fed with canal water from the Nile. The seasonally variable inorganic and organic TDS (total dissolved solids) content is between 300 and 550 milligrams per liter. The water is pre-treated using precipitation and flocculation (coagulation), cold lime softening and filtration. During softening (decarbonization), the hardener calcium carbonate is precipitated through slurring of calcium hydroxide in

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order to prevent scaling. Such deposits of particles on the membrane would otherwise block it and make it less effective.

The RO plant consists of two trains, each with a feed stream of 120 m<sup>3</sup>/h and a recovery rate of 74 percent. A single train is composed of two stages in a 13:6 array with six elements per vessel. The RO plant was installed in an existing water treatment plant to provide pre-treatment for full demineralization with Lewatit MonoPlus resins.

### High-performance membranes

The Lewabrane RO elements demonstrated their excellent salt rejection of up to 99.76 percent (at 20 °C) from the outset. This rejection results in a permeate conductivity in the order of 3 to 5 µS/cm, which significantly reduces the ionic load for the resins at the demineralization unit. While maintaining the required parameters of demineralized water, the cycle times of the demineralization trains are increased by up to four times (depending on season and with the possibility of a further increase).

For detailed information on LANXESS's range of water treatment products, go to [www.lpt.lanxess.com](http://www.lpt.lanxess.com).

LPT is part of LANXESS's Performance Chemicals segment, which recorded sales of EUR 2.1 billion in 2015.

LANXESS is a leading specialty chemicals company with sales of EUR 7.9 billion in 2015 and about 16,700 employees in 29 countries. The company is currently represented at 54 production sites worldwide. The core business of LANXESS is the development, manufacturing and marketing of chemical intermediates, specialty chemicals and plastics. Through ARLANXEO, the joint venture with Saudi Aramco, LANXESS is also a leading supplier of synthetic rubber. LANXESS is listed in the leading sustainability indices Dow Jones Sustainability Index (DJSI World) and FTSE4Good.

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## News Release

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

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### **Information for editors:**

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