News Release

LANXESS at IFAT 2016 in Munich, May 30 – June 3,
Hall A2, Stand A2.309

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LANXESS working on behalf of water and the environment

- **New reverse osmosis membrane elements**
- **Investing in the future**

Cologne – Specialty chemicals company LANXESS, one of the world's foremost suppliers of water treatment solutions, is exhibiting for the first time at the top tradeshow IFAT in Munich from May 30 to June 3. Its presentation at this international innovation platform for environmental technologies focuses on high-performance ion exchange resins from the Lewatit product range for wastewater treatment and the new reverse osmosis membrane elements from the Lewabrane ASD series with their novel feedspacer design. "As a major supplier of water treatment technology, we have a twofold responsibility," says Jean-Marc Vesselle, head of the LANXESS Liquid Purification Technologies (LPT) business unit: "We are committed on one hand to offering high-performance products that help protecting water as a valuable resource and the environment in general. On the other hand, sustainable and resource-preserving production is in our focus." At the 50th IFAT, LANXESS will demonstrate how its products and services meet this responsibility.

Tried-and-tested ion exchange resins – not just for wastewater treatment

Ion exchange resins that remove heavy metals from wastewater – as they occur in the metal processing industry, for example – can prevent pollution of groundwater and thus indirectly ensure clean drinking water.

The hybrid adsorber Lewatit FO 36 – a polymer-based anion exchange resin modified with a special, nanoscale iron oxide – allows

highly efficient and selective removal of arsenic anions from drinking water. Arsenate and arsenite ions are attached via a covalent bond to the iron oxide surface and can thus be removed from the surrounding water.

Lewatit MonoPlus TP 207 is a weakly acidic, macroporous cation exchange resin with iminodiacetate groups for the selective binding of heavy metal cations from weakly acidic to slightly alkaline solutions. It is characterized by a very tight particle size distribution, which means it consists of beads of very similar size. Its superior kinetic behavior results in faster uptake of ions and better capacity utilization compared to heterodisperse ion exchange resins. Lewatit MonoPlus TP 207 is ideal for the selective removal of trace heavy metals, particularly copper and nickel ions, from wastewater in metal surface finishing, for recovery of metals from electroplating rinses, removal of metal contaminants from processing and pickling baths, drinking water production and groundwater remediation.

A further development of the ion exchange resin Lewatit TP 214, which has proven its worth over more than 25 years, is the monodisperse, macroporous chelate resin Lewatit MonoPlus TP 214. Its thiourea groups have a high affinity with precious and platinum metals and mercury. It is thus used in particular for removing mercury, for example in off-gas scrubbing, chloralkali electrolysis plants, groundwater purification and metal separation and recovery in hydrometallurgy.

Lewatit MonoPlus TP 214 is used, for instance, in flue gas scrubbing in the waste incineration plant at the *Abfallentsorgungs- und -verwertungsgesellschaft Köln mbH (*AVG Köln). All of Cologne's non-recyclable domestic waste and non-recyclable remnants of bulk, industrial and building site waste are incinerated here – in 2014, this totaled around 740,000 metric tons. One kilogram of this contains on average half a milligram of mercury. "Mercury emissions remain a sensitive issue," says Markus Weiler, plant manager at AVG Köln: "Meeting the thresholds for flue gases generated in waste

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incineration therefore has a very high priority. Lewatit MonoPlus TP 214 has had a proven track record in our processes over many years. It removes mercury from the acid scrubber safely and reliably and satisfies occupational health and safety requirements."

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Under one roof

As part of the realignment of the LANXESS group, since the start of 2016 the LPT business unit has been responsible for marketing technical oxides for industrial water and wastewater treatment under the Bayoxide brand. "The products are a perfect addition to our existing product portfolio. Substantial synergy effects can be leveraged thanks to the similar customer structures," says Vesselle, adding: "We now offer customers an even broader portfolio for water treatment from a single source, supported by application engineers experienced in all sectors of the water industry."

The focus at IFAT is on two technical iron oxide hydroxides. Bayoxide E IN 20 is especially suitable for removing arsenic ions from industrial wastewater, process water and contaminated groundwater. It also reliably adsorbs other ions such as phosphate, antimony, lead, cadmium and vanadium. The Bayoxide E IN 30 adsorber medium is especially suitable for removing phosphate and other ions from aquarium water and wastewater. It has a particularly high capacity and is characterized by very good abrasion stability.

Investing in the future

Lewabrane membrane elements from LANXESS exhibit a long service life, good permeate yield, effective salt rejection and low energy requirements. "To meet the continuing rise in demand, we will be doubling the capacity of our membrane element production facility in Bitterfeld by 2017," says Alexander Scheffler, who is responsible for global membrane business in the LPT business unit.

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It isn't just the quantity that is being boosted – LANXESS is developing increasingly effective grades for reverse osmosis (RO). In Munich, LANXESS is showcasing its new B400 LE ASD and Lewabrane B400 FR ASD membrane grades with new types of feed spacer. Strands of various thicknesses are used for the multifunctional feed spacers. The new product family is named after this alternating strand design (ASD). The innovative feed spacers ensure optimized flow properties in the RO element and thus lower energy consumption. "They create space between the membrane surfaces for the flowing water, while supporting the membrane and producing turbulent water flow. Combined with the tried-and-tested RO membrane, this results in high-performance products suitable for any number of applications," explains Scheffler. Optimized for applications in brackish water, the elements have standard geometries and high fouling resistance. The FR (fouling-resistant) grades from the Lewabrane range are particularly suitable for wastewater applications.

Well designed

Another example of the innovative strength of LPT is the engineering tool developed by LANXESS that enables easy and reliable design of water treatment facilities. LewaPlus software allows the design of both separate ion exchange and RO plants and combined systems. It pools the knowledge and experience of LANXESS in both technologies and currently offers six modules. Among other things, the 1.12 version now available includes new features for the RO module, giving plant designers a recommendation on how they can best arrange the membrane elements to their needs.

Detailed information about the products can be obtained online at http://lpt.lanxess.com/en/home/. The LewaPlus software can also be downloaded from this website free of charge.

represented at 52 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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Forward-Looking Statements.
This news release may contain forward-looking statements based on current assumptions and forecasts made by LANXESS AG management. Various known and unknown risks, uncertainties and other factors could lead to material differences between the actual future results, financial situation, development or performance of the company and the estimates given here. The company assumes no liability whatsoever to update these forward-looking statements or to conform them to future events or developments.

Information for editors:
All LANXESS news releases and their accompanying photos can be found at http://press.lanxess.com. Recent photos of the Board of Management and other LANXESS image material are available at http://photos.lanxess.com. TV footage can be found at http://globe360.net/broadcast.lanxess/.

You can find further information concerning LANXESS chemistry in our WebMagazine at http://webmagazine.lanxess.com.

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