

Ion exchange resins for industrial water treatment

Need for newer technologies for effective treatment of water and wastewater is on the rise, especially in India which has a rapidly growing industrial segment besides rising population. Ion exchange resins in combination with other technologies offer an effective solution in water treatment.

It is estimated that demand for clean water will rise by a third by 2030. Factors like urbanisation and increase in population will influence the demand of potable water in India. Wastewater treatment is becoming a necessity and with people becoming increasingly aware about the dangers of contaminated water, India is keen to implement the standards for water that are internationally accepted.

“Water recycling along with the decontamination and also the desalination of this ever-scarce commodity are becoming issues of steadily increasing importance across the globe,” says **Jean-Marc Vesselle, Head of Lanxess’ Ion Exchange Resins** business unit. “You have to take account of the entire production value chain, if you want to tackle these challenges. The German specialty chemicals group Lanxess has a broad range of innovative products and technologies.”

Treatment of industrial wastewater helps in removing harmful elements like fluoride and harmful metals that

contaminate the ground water. Most of the metals in ionic form can be removed through ion exchange technology and that helps in keeping the environment clean.

Most of the industries where there is heavy use of water in the processes are taking to water treatment to be able to use recycled water. Paper, oil and natural gas, metal transfer and food are some of the industries that benefit through intensive water treatment. Use of ion exchange resins is productive right from mining to procedures in metal plating shop, as it ensures recovery of valuable metals too.

Similarly, food industry needs pure water for processes; oil and natural gas industry and power generation industries using boilers need steam and so on. Desalinated water is needed for the boiler that is free of chemicals and minerals as encrustation and corrosion in the boilers damage the expensive turbines and steam generators. Treatment of radioactive water is another application of this technology.

Tankfarm for raw materials for Ion exchange resins plant





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A new technology introduced in the Indian market is Lewabrane® membrane technology. The main field of application for the currently available RO membrane separation elements is desalination of brackish water needed in many industrial applications. RO membrane and ion exchange water treatment processes complement each other perfectly.

Lewatit® in combination with Lewabrane® reverse osmosis (RO) membrane elements, help meeting the highest demands in the industry.

The premium products can be used to desalinate water for chemical processes or power generation. The decision to combine the two methods depends on the respective conditions. While membrane technology is cost-effective for water with a high salt content, only ion exchangers can purify water with low salt concentrations to the point when only trace amounts remain. With both methods connected in series, water of the highest purity can be produced even from very poor-quality water.

One key application of these technologies is in the production of boiler feed water. These premium products extend the service life of valuable installations such as turbines, steam generators and pipelines, ensuring their cost-effective operation throughout. Applications include complete desalination in the treatment of freshwater and the treatment of radioactive wastewater in the primary circuit of nuclear power plants, as well as cooling water or condensation treatment in the secondary circuit.

“The Indian market for water treatment is yet to realise its full potential but will open up many opportunities in the coming years. Environmental norms are getting more stringent and more industries will now opt for wastewater treatment. Removal of contaminants from water

will therefore be an important area of application for us. Our solutions can help industries ensuring clean water and protecting both the environment and the climate,” adds Wolfgang Heuchel, Vice President Ion Exchange Resins Asia Pacific at Lanxess.

For example, Lewatit® resins can be used to recover valuable metals from wastewater. These metals, when recovered, can offer an alternate revenue stream to industries. With increased urbanisation and increase in disposable income, people are opting for packaged foods. The food processing industry which manufactures packaged foods requires high volumes of clean water. Every packed food has ion exchange resins processing step in the chain of processes.

“Thus, we are optimistic that India’s water and wastewater treatment market will be characterised by growth and will open many doors for various applications.”

Lanxess has commissioned a state-of-the-art facility for manufacturing ion exchange resins at its site in Jhagadia that will supply the Lewatit® product range to customers across the globe.

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