



Product information

Compact electroflotation - an energy-saving and resource-saving alternative for water treatment

EnviroChemie introduces an energy-saving and resource-saving alternative to ultra-filtration, emulsion splitting plants and distillation plants to the market.

Production and cleaning processes frequently generate wastewater, rinsing water or circulation volumes between 10 and 200 m³ per day. Reuse without treatment is usually not possible due to technical production considerations. On the other hand, money is lost when water is discharged, due to water and wastewater charges. Parameters such as for hydrocarbons and heavy metals are also often exceeded. A water pretreatment plant is therefore required for legal discharge.

In principle, there are many different processes available to the user, such as micro and ultra-filtration or distillation / evaporation. The EnviroChemie Group product range also includes a comprehensive offering in this regard. So what is the reason for electroflotation? Research was conducted to find a process that can reliably treat small and medium quantities of wastewater, process water or rinsing water, without the need for constant cleaning and rinsing at high cost. It was required to run in continuous operation and not in batch mode, and manage inflow temperatures from 5 to 70 °C without heating or cooling devices. The concept of electroflotation was built on platform of the Lugan dissolved-air series and tested extensively. The Lugan series, with its proven components, has already been built more than 1,000 times. The inflow water is neutralised and flocculated inside the compact plant, and then introduced into the E-flow reactor, where the patented gas bubble production takes place using inert electrodes. The gas bubbles, as shown in the photo below, combine with the dirt particles in the wastewater and push them into the skimmer area of the reactor, where they are released into a dewatering trough as pulpy sludge. A solid residual substance is created here for disposal. Due to the lower proportion of water, its volume is clearly below those that arise in ultra-filtration or distillation. The energy used for the production of gas bubbles is only about 0.1 kWh per m³ water throughput. The reactor feed process works without pressure. As a result, the energy consumed by the conveying and feeding pumps is also low and is estimated at a maximum of 0.5 kWh per m³ of wastewater, depending on the location of the collecting tanks. Cleaning tests can easily be carried out in the laboratory and technology centre of EnviroChemie in Roßdorf near Darmstadt, using water samples of approximately two to five litres.

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