GROSS WASSERTECHNIK

Plant construction

Regeneration service

Retardation system GW-AleX –
The economic care of your anodizing baths

Good reasons for you to improve and optimize your anodizing process.

When anodizing aluminum in a sulfuric acid electrolyte, this process accumulates aluminum over time. If the aluminum concentration is too high, the electrolyte gets useless. Therefore, parts of the bath have to be exchanged for new electrolyte on regular basis, whereby the aluminum concentration varies between 10 g/L and 15 g/L depending on the process. If the aluminum concentration could be kept constant in another way, enormous savings in chemicals and energy would be possible.

Plant description of the retardation system

Our retardation system GW-AlEx works accordingly to the principle of ion exchange. However, there is no "exchange" of ions in the classical sense, but an adsorption or retardation (= delayed release) of the sulphate ions within the resin bed. In this case, the acid anions diffuse into the pores of the ion exchanger and are restrained there, while the remaining aluminum salts in the flow of the resin column are fed into the sewage and thus removed from the bath cycle.

The front of your retardation system GW100-AleX

Recovery of sulfuric acid

If the resin is loaded with acid, the flow direction is automatically reversed and the adsorber is fed with water from top to bottom. The free acid diffuses from the resin and, is directed back into the process bath.

Automated control and user-friendly operation

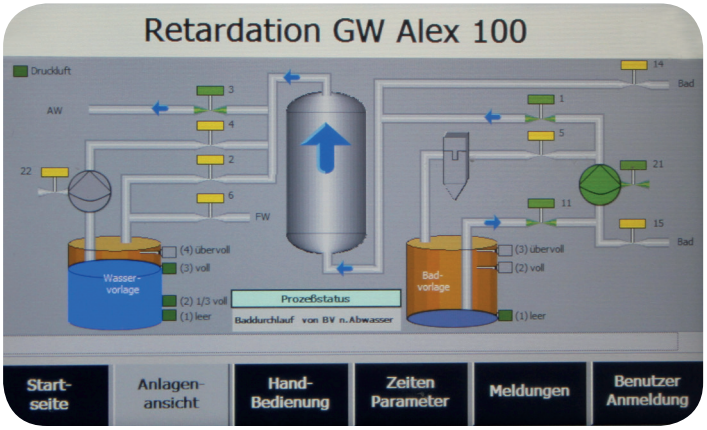
The individual work cycles of the system are stored in a step chain of the PLC control and are processed fully automatically in a level-controlled way.

The advantages for your process at a glance

Due to the consistent aluminium contents in your anodizing baths, many advantages arise:

- **Chemical Savings** – The anodizing bath accumulates continuously in the course of the process with aluminum. Due to the constant Al-concentration, the intervals of expensive and time-consuming re-approaches of the electrolyte are greatly reduced.
- **Energy savings** – In order to maintain a constant current density in the anodizing bath with increasing Al-concentration, a higher voltage and therefore increased energy consumption is necessary (linear ratio). By connecting our retardation plant GW-Alex, the aluminum content is kept constant and an additional power consumption is avoided.
- The constant current-voltage ratios result in **consistent aluminium oxide layers**. This means additional **quality assurance**.
- The amount of **wastewater used to neutralize** or dispose of large quantities of anodizing bath is significantly **reduced**. Instead, small amounts of weak acidic aluminium sulfate solutions are involved, which can be treated continuously and plannable.
- The exposure through **sulphate** in the wastewater can be significantly reduced.
- A **connection of several baths to a retardation system** is possible. Due to the flexibly programmable PLC, several baths can also be controlled in automatic mode.

Contact us – we will be happy to advise you to improve and optimize your anodizing process.



Touchpanel of a GW100-AlEx

Our entire range of services for you at a glance

Our range of services in plant construction

- Classical plant construction for industrial wastewater treatment (chemical-physical processes)
- Planning, manufacturing and commissioning of mobile ion exchange plants for external resin regeneration
- Planning, production and commissioning of stationary ion exchange plants (recycle ion exchange plants, selective exchange plants for wastewater treatment)
- Fresh water treatment (demineralisation) via membrane processes / reverse osmosis plants
- Resin change on existing ion exchanger plants and take-back of used resins as part of voluntary redemption
- Modernization and conversion of plant controls (Siemens S5 to S7) in wastewater treatment and water treatment

Our services

- Regeneration of contaminated ion exchange resins from surface treatment, electroplating
- Replacement and regeneration of mixed-bed resins for tool making and ultrapure water applications
- Regeneration of contaminated resins from groundwater and soil remediation
- Performance of preliminary tests (ion exchanger and wastewater treatment)
- Acceptance of problematic foreign waters
- Maintenance and maintenance of water treatment plants and sewage plants

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