

Wallace & Tiernan® Process Technology OSEC®-B Hypochlorite generation system

The Wallace & Tiernan® electro-chlorinator OSEC®-B was developed for the generation of sodium hypochlorite through the electrolysis of a brine solution. Production of sodium hypochlorite solution takes place in once-through membraneless cells.

Applications

- Potable water
- Swimming pool water
- Water in breweries, the beverage and food industry
- Cooling water
- Irrigation systems
- Municipal and industrial wastewater

General

Electrolysers built to the tubular cell process, which are used as an alternative to chlorine gas systems, provide many safety features. Risks inherent in the transport, handling and storage of chlorine gas or commercial sodium hypochlorite solutions are eliminated. Local regulatory issues often limit the use of chlorine gas for safety reasons.

OSEC®-B systems produce directly on site sodium hypochlorite from a saturated solution of common salt and electricity. Generation takes place on demand only. The hypo produced in batch operation does virtually not degrade in strength even if it is stored over an extended period of time.

The anodes used are made from titanium with a precious metal coating. This construction allows to grant a five calendar years warranty after installation and commissioning. The cathodes are made from a special grade Hastelloy C. Automatic control of the supply voltage combined with a programmable periodic cleaning cycle of the monopolar electrodes by dilute hydrochloric acid ensure a virtually operator-free performance. The number of anodes in the electrolyser can be customised to produce the desired quantity of

Benefits:

- Customised design
- Capacities up to 40 kg/h Cl₂
- Virtually operator-free performance due to programmed electrode cleaning cycle
- Long life anodes
- PLC controlled system
- Facility to meter solution to multiple points of application
- Highly economical
- Low energy consumption
- Rugged compact construction
- Easy installation and start-up



Product Sheet

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chlorine. This system flexibility provides a significant reduction in power requirements and plant cost.

An intelligent PLC control system provides for the fully automatic operation of the unit including all control, monitoring, alarm and interlock functions. Having set the flow rates for brine and dilution water, all that remains on site is to turn the start switch. Metering of the sodium hypochlorite solution is achieved by manually or automatically controlled dosing pumps.

Operation

Softened water is mixed with common salt (tablets) in a dissolving tank to prepare a saturated brine solution which is then fed by a metering pump into the electrolyser cell. The salt saturator is designed to allow refilling of salt without interrupting the generating process. The dilution water is combined with the saturated brine solution to form an approximately 2 % brine solution which enters the electrolyser.

The DC current applied produces sodium hypochlorite and hydrogen. Heat transfer and the formation of gas result in a lifting effect that accelerates the separation of the hydrogen from the electrolyte. The hydrogen together with the sodium hypochlorite solution is discharged into the hypo storage tank. An air blower is used to dilute the hydrogen to well below its flammability limit and to force ventilate it to a safe outdoor discharge point.

The sodium hypochlorite solution produced has a strength of 6 g/l equivalent chlorine. Level probes installed in the hypo solution storage tank start and stop the electrolyser.

Technical data

Capacity ranges of the electrolyser:
570/1330/2660 g/h Cl₂
(for systems up to 40 kg/h Cl₂: consult)

Power consumption:
4 – 5 kWh per kg chlorine

Salt consumption:
approx. 3 kg salt per kg chlorine

Sodium hypochlorite strength:
approx. 6 g/l equivalent chlorine

Dimensions (W x H x D):
1500 x 1910 x 750 mm

Weight:
max. 350 kg

Power supply:
3/N/PE AC 400/230 V, 50 Hz.

Installation and maintenance

The electrolyser system is shipped pre-assembled and pre-wired. On site just an electricity supply and operating water have to be connected and the sodium hypochlorite metering system has to be installed. For these works, the correct installation and regular maintenance, we recommend our specially trained technicians.

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