Wallace & Tiernan® Process Systems
OSEC®-NT
Hypochlorite generation system

Electrolysers that are built to the tubular cell or membrane process, provide many safety features when used as an alternative to chlorine gas systems. Transport and handling of chlorine cylinders is completely eliminated. Also the mandatory chlorine store rooms with all their safety equipment such as sprinkler systems are no longer required with this technology.

Typical applications

- Disinfection of swimming pool water
- Disinfection of potable water
- Disinfection of process water for breweries and the beverage industry
- Disinfection of process water in canneries and the food industry
- Treatment of cooling water to prevent biofouling
- Disinfection of industrial process water

Features

- Compact design: hypochlorite and brine tanks incorporated, plus free space for two metering pumps
- No chlorine in brine tank
- Metering to multiple points of application possible

General

OSEC®-NT electrolysers generate on demand highly effective sodium hypochlorite from saturated brine, softened water and DC power. All the problems associated with commercial sodium hypochlorite solutions, such as the poor stability in storage (degradation), laborious handling or dilution, storage of carboys, are eliminated by this on site generation.

Benefits:

- High yield
- Low consumption of operating water and salt
- High strength and excellent stability of the sodium hypochlorite
- Unparalleled safe handling and operation
- Uncompromising selection of materials resulting in maximum service life
- PLC control with text display
- Optional tele-monitoring

Product Sheet

Water Technologies

SIEMENS

The Wallace & Tiernan® membrane process is based on specially coated anodes and cathodes that ensure a long service life for the electrolyser cell. Unlike conventional membrane processes, the Wallace & Tiernan® technology does not circulate chlorine laden lean brine in a loop via the salt saturating tank. Thus no chlorine can escape to the ambient air. All the salt used is completely converted into chlorine.

An intelligent PLC control and monitoring system with text display provides fully automatic operation. Both OSEC®-NT capacity ranges of 3 and 6 kg Cl_2 per day are built as very compact units: Hypochlorite and brine tank, control panel, rectifier, water softener and free space for two metering pumps is also incorporated into the compact skid.

Optionally the unit can be linked into standard bus systems allowing tele-monitoring via telephone cable.

Method of operation

At the heart of the electrolyser unit is the electrolyser cell. Through the use of special materials its components are designed to provide maximum safety and service life. The cell is divided into an anode and cathode compartment by an ionselective membrane.

A saturated brine solution is prepared from salt and softened water in a salt saturating tank. The brine is completely converted while it is pumped through the hermetically closed anolyte circuit. At the same time softened water flows into the cathode compartment.

DC current is applied to the specially coated electrodes. The positive sodium and negative chloride ions contained in the anolyte move to the oppositely loaded electrodes. Only the positive sodium ions can pass through the ion-selective membrane. At the anode the chloride ions react to form chlorine, in the cathode compartment sodium hydroxide and hydrogen are generated. At the outlet of the anode compartment the chlorine gas is separated from the anolyte.

The chlorine gas is passed to a reactor where it reacts with the hydrogen-free sodium hydroxide from the cathode compartment to form sodium hypochlorite. The separated hydrogen is safely diluted with air using a ventilation fan and released to the open air. The sodium hypochlorite solution generated is discharged into a holding tank from where dosing pumps transfer the solution to the water to be treated.

Capacity in kg Cl_2/day	Dimensions (W x H x D) in mm	Weight in kg	Max. power consumption in KVA	Fuse in A	Number of electrolysers
3	1200 x 1800 x 750	260	1.1	1 x 20	1
6	1200 x 1800 x 750	268	2.0	1 x 20	2

Technical data

Power consumption:
approx. 4.5 kWh per kg of chlorine

Salt requirements:
1.7 kg of salt per kg of chlorine

Applied salt:
OSEC®-Salin

Sodium hypochlorite strength:
approx. 25* g/l equivalent chlorine

pH value of the sodium hypochlorite solution:
10 – 11*

Power supply:
1/N/PE AC 230 V, 50 Hz

*: May change depending on conditions on site.

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Water Technologies

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