



OSEC[®]-LC PLUS HYPOCHLORITE GENERATION SYSTEM

WALLACE & TIERNAN[®] PROCESS TECHNOLOGY

INTRODUCTION

The OSEC[®]-LC Plus system is a single skid, fully packaged system which produces sodium hypochlorite from brine (salt saturated water) by passing it through a DC current. A sodium hypochlorite solution, of 0.8% available chlorine, is produced, which at this strength, is not deemed to be a hazardous chemical.

The OSEC-LC Plus system is available in two sizes, of 6kg (13Lbs) and 12 kg (26Lbs) per day chlorine output and is primarily an 'on-demand' based feed device, although an optional bulk tank can be provided. Sodium hypochlorite production is controlled by start and stop, intrinsically safe, level switches in the 200 litre day tank. An extra low-level switch also triggers an alarm to alert the treatment works operators.

A forced air ventilation system within a sealed enclosure assures that the OSEC-LC Plus system has its own zoned environment to conform to ATEX requirements.

As the OSEC-LC Plus system provides for the continuous production of sodium hypochlorite solution, this eliminates dependence on commercial chlorine suppliers and the problems inherent in the transport and storage of bulk hypochlorite, particularly to remote or residential locations. In addition, use of these systems could lower operating costs and disinfection by-products significantly compared to the use of bulk hypochlorite. Operation is completely automatic making the OSEC-LC Plus System ideally suited to un-manned locations.

Key Benefits

- ATEX compliant in a single package, providing increased safety
- 0.8% available chlorine solution produced, minimising COSHH requirements
- Low cost of operation and ownership
- Small footprint, minimising space required
- Ease of use
- 5 Year parts and labour anode warranty
- Float, flow & air switch interlocks providing increased safety
- In-house electrolyser anode manufacture ensuring continuity of spares/parts

OPERATION

Water is introduced from the mains supply, via a water softener which will remove any calcium, magnesium, iron and manganese present, and is used to make up the brine solution and feed the dilution water to the electrolyser. The use of a softener ensures that the electrodes require no routine maintenance through scale formation.

When brine (NaCl) is passed through the electrolyser chlorine (Cl₂) is produced at the anode (positive electrode), and both sodium hydroxide (NaOH) and hydrogen (H₂) at the cathode (negative electrode).

The chlorine goes on further to react with the sodium hydroxide to produce sodium hypochlorite (NaOCl) and is passed to the storage tank.

The venting of hydrogen from the OSEC®-LC Plus System is by way of an integral forced air blower.

Air passes both across the day tank and the product enclosure, then passes to the atmosphere. A safety air flow switch is used, and interlocked via the controlling PLC, to ensure that production does not start, or is shut down should the hydrogen not be venting correctly. A float switch in the electrolyser and a flow switch in the water feed line also provide safety interlocks for safe start or fault shutdown.

TECHNICAL DATA

Capacity:

6 kg/12 kg (13 lbs/ 26 lbs) Chlorine per day

Salt Requirement:

3.5 Kg (5.5 lbs) Salt per 1 kg (2.2 lbs) Chlorine

Water:

Supply Pressure 2 – 5 bar /

Temperature 10 – 25°C (50 - 77°F)

Consumption 125 litres per 1 kg Chlorine

Power:

Supply 220 V/1 PH/50 Hz

Rating 3.5 KVA (6 kg) 6.5 KVA (12 kg)

Consumption 4.5 kW (DC) per 1 kg (2.2 lbs) chlorine

Ambient Temperature:

5 - 40°C (41 - 104°F)

Control Panel:

PLC based operation

Standard Equipment Supply:

Skid mounting

90 litre salt saturator

200 litre product tank

Water softener

Brine pump

Dilution water flow switch

Electrolyser

Electrolyser power supply

Air blower

Control panel

Optional Equipment Supply:

Metering pumps

H₂ off-gas monitor

PLC control touch screen interface

Bulk storage tanks

Dimensions H x W x D mm (Inches):

1800 x 1600 x 750 (71" x 63" x 29 ½")



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