MILESTONE
CHLORINATION TECHNOLOGIES

SEAWATER ELECTRO CHLORINATION SYSTEMS

STONECHLOR – S

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On-site hypochlorite generation from seawater for
bio fouling control in power plants, LNG terminals, desalination plants.

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About Us

- Milestone Chlorination Technologies LLC. (MCT) is a growth company formed by group of experiences engineers and managers which specialized in the industry of chlorination, we provide specialized solutions in the chlorination field including electro chlorination, chlorine dioxide and membrane chlorination in application of anti-fouling and water treatment.

- MCT is an international company based in China, specializing in Chlorination Titanium electrolyzer design, also chlorination system manufacturing for water treatment and bio-fouling control design, consultant, engineering, development. Related services for chlorination electrolytic cell and electro chlorination system, such as electrolyzer and electro chlorination design, on-ste inspection services, refurbishment, upgrade and replacement for seawater and brine electrolysis.

STONECHLOR – S Electro Chlorination System

- StoneChlor – S series Electro Chlorination Package is designed for land based industrial application that uses seawater to generate sodium hypochlorite for the formation of bio fouling from the various organisms lurching in the ocean.

- The purpose of on-site generation sodium hypochlorite solution from seawater is to economically and safety produce this powerful biocide and disinfecting agent for industrial plant using.

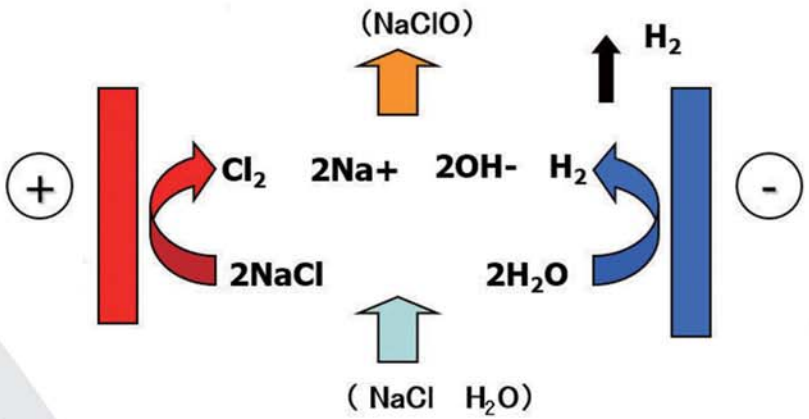
- Seawater based electro chlorinator is generally applied for protecting industrial cooling water, circulating water from bio growth, and being widely applied for the reason of its economic operating cost, as the raw material directly drained from the seawater and only electricity as well.

- StoneChlor – S systems are the standard and preferred electro chlorination unit for bio fouling control in power plants, cooling towers, liquefied natural gas (LNG) terminals and desalination facilities, as well as coastal installations using seawater for cooling or other process needs all over the world.

Process Description

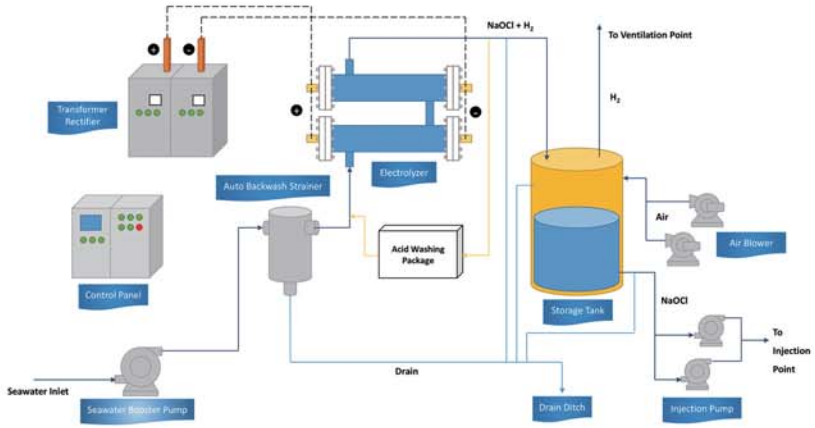
- Bio fouling control is one of the main challenges in the upstream processes of the power station is to protect pipeline and process equipment against biological fouling.
  Restriction of cooling water flows, acceleration of corrosion and a reduction in the overall life of process equipment can all be controlled by the effective design of our electro chlorination package.
  Seawater Electro chlorination system packages play an effective role in optimizing flow assurance.
  Raw seawater is fed into the package inlet at the designed flow rate via a side stream from the main seawater process line.
  Once controlled, the seawater is passed through the electrolyzer which are fed an electrical supply from the package rectifier.
  Depending on pressure available this seawater flow will be pressure controlled or boosted to provide the optimum operating pressure and flow rate.
  The rectifier is designed specifically for the requirements of the installed electrolyzers. It converts the AC platform input voltage into the required low voltage DC current and regulates this output to a selected and controlled level.

- Electrolysis process takes place within the electrolyzer as per the following equation:
  At the anode: $2\,Cl^- - 2\,e \rightarrow Cl_2$
  At the cathode: $2\,Na^+ + 2\,H_2O + 2\,e \rightarrow 2\,NaOH + H_2$
  Overall: $2\,NaCl + 2\,H_2O \rightarrow 2\,NaOCl + 2\,H_2$



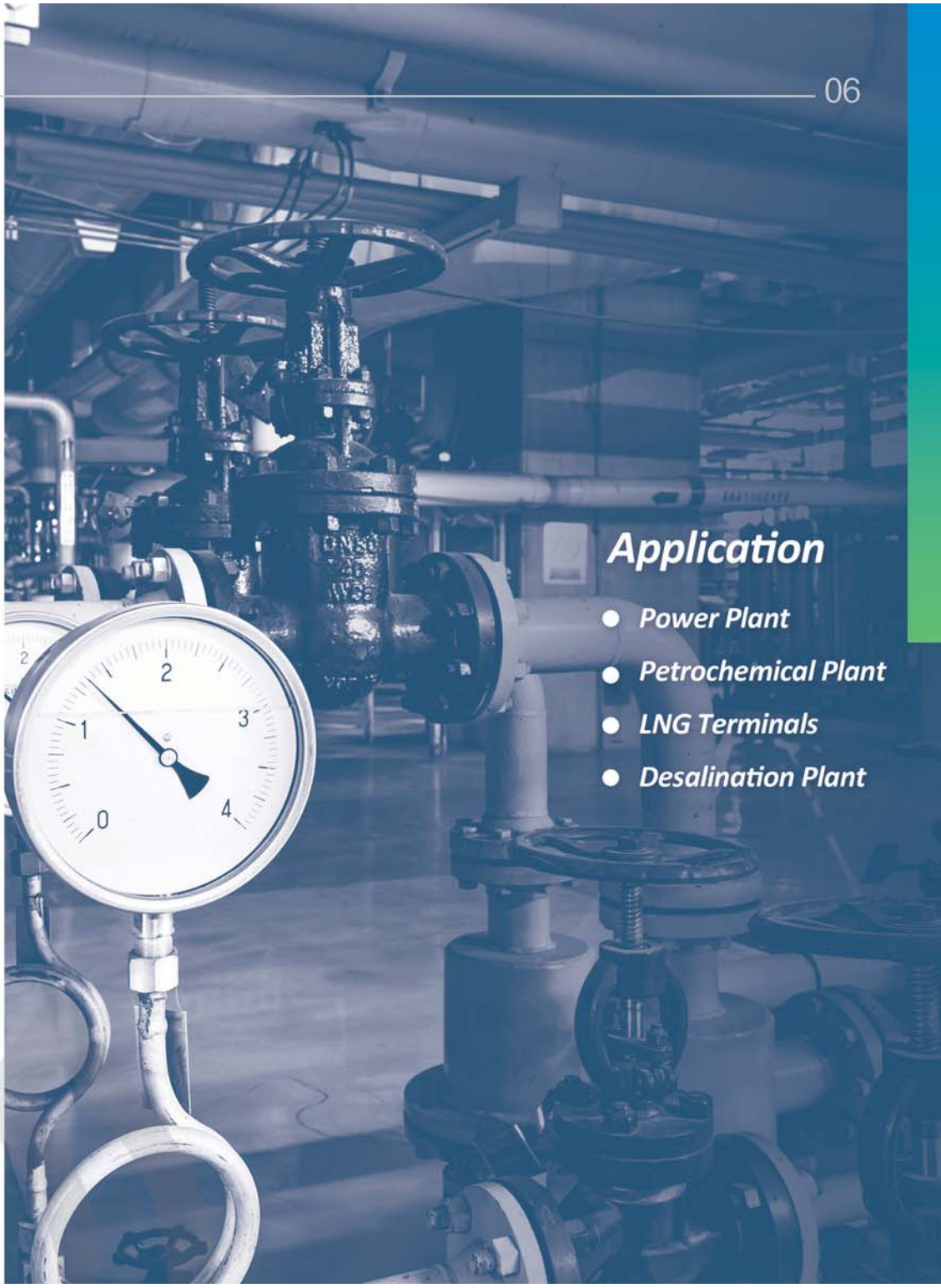
Typical StoneChlor – S
Seawater Electro Chlorination System Process Flow

- Through the electrolysis process the package produces the required amount of sodium hypochlorite together with the by-product, hydrogen gas.
  The solution with hydrogen gas are fed into degassing tank connected with air blowers, and the hydrogen gas vents to open atmosphere.
  The hydrogen free solution containing sodium hypochlorite is then dosed into the seawater circuit through dosing pumps or gravity.



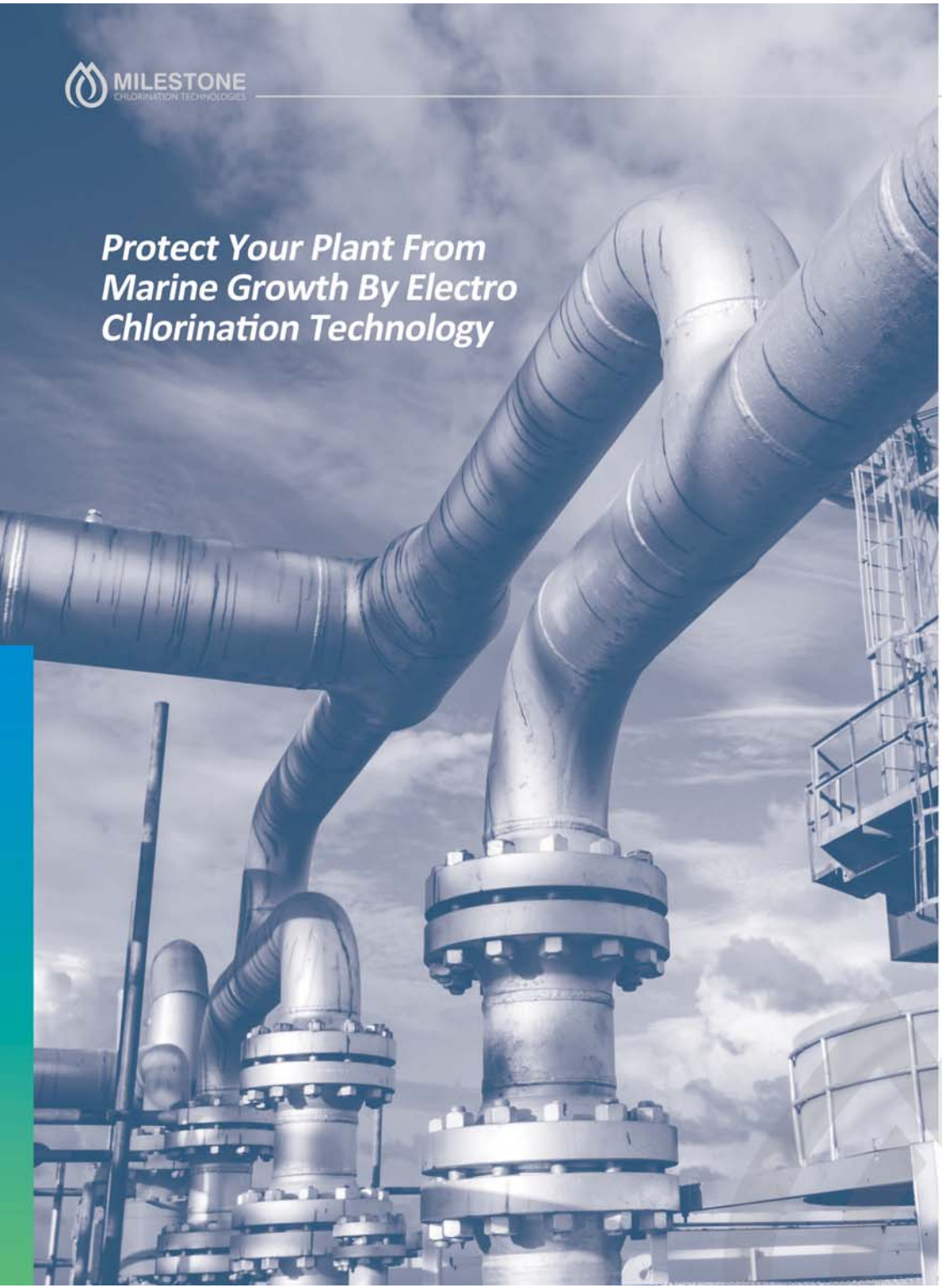
Typical StoneChlor – S
Electro Chlorination System Component

- Seawater Booster Pump
- Strainer
- Electrolyzer Assembly
- Transformer – Rectifier
- Local Control Panel
- Storage & Degassing Tank
- Air Blower
- Injection Pump
- Acid Washing Pump



Application

- Power Plant
- Petrochemical Plant
- LNG Terminals
- Desalination Plant



Protect Your Plant From Marine Growth By Electro Chlorination Technology

Technical Benefit & Features

Electrolyzer OEM

Working with the China major anode and specialty coating manufacturer, we have access to the leading industry electrolyzers with over 30 years' service.

Operating Cost

By using the raw material of seawater and electricity, the electro chlorination system considered as the most cost-effective way of controlling marine growth for power plant, petrochemical plant and related industrial application.

Safety

Producing sodium hypochlorite on site reduces the requirement for using liquid chlorine solutions. The impracticality of shipping, storing and dosing large volumes of bulk hypochlorite for places have no access to sodium hypochlorite solution. Electro chlorination is the industry preferred method of bio-fouling control.

On site Production

Control of the complete technological process with a central PLC control system. Visualization of the entire process and logging of all key parameters of alarms. Any parts of the process of the system could also be adjusted by PLC.

Acid washing

By applying acid washing technology for electrode to achieve long lifespan of the electrolyzers assembly. The electrolytic cell could achieve longer life span and maintain in good condition for continuous operation.

Process automation

Control of the complete technological process with a central PLC control system. Visualization of the entire process and logging of all key parameters of alarms. Any parts of the process of the system could also be adjusted by PLC.

Innovative Design and Solutions of Seawater Electro Chlorination Application