

BFCC

Copper chlorine system

APPLICATIONS

- Onshore and offshore production facilities
- Shipping
- Refining

ADVANTAGES

- Proven, reliable experience of more than 15 years and more than 160 units operating worldwide in a variety of applications
- No moving parts
- No hydrogen tank required
- Low capex and opex
- No requirement for additional chemicals
- Low power and maintenance requirements
- Compact unit size
- No acceleration of corrosion

The BFCC* copper chlorine system uses the application of DC electrolysis to produce copper and chlorine at low concentrations. These then work together to effectively prevent biofouling in a variety of water systems. The low concentrations mean a significantly lower environmental impact. The system is contained in a small equipment package, and there is no requirement for hydrogen disengagement.

Operating principle and key features

Based on Faraday's laws, the unit employs a constant-current, variable-voltage DC power supply to energize copper and chlorine producing electrodes. The low concentrations (5-ppb copper and 50-ppb chlorine) generated are then added into the system and work together to keep the water system free of both micro- and macrofouling. The equipment is smaller and less expensive compared with conventional units and sodium hypochlorite generators while requiring much less power and maintenance.

Performance

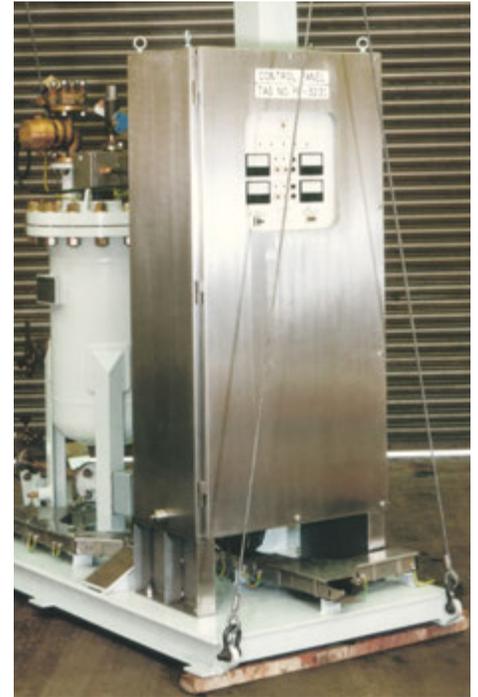
The system has a high water throughput with no dosing line blockage. There is no chlorine-induced corrosion, and the process equipment itself has a small footprint and low weight, making it ideal for a wide range of applications.

Product range

Individual units are available for flow rates up to 754,000-bbl/d [5,000-m³/h] treated flow rate.

Units are also available for copper- and chlorine-generating capacities from 0.66 lbm/h [0.3 kg/h] to 11.02 lbm/h [5.0 kg/h].

For higher masses of chlorine, copper anodes are used in conjunction with the METROL SEA-CELL* electrochlorinator.



The compact-footprint BFCC copper chlorine system.



Detailed shot of BFCC system electrodes installed in a marine (strainer-type) system.

Options and types

Schlumberger is the only company to offer both the BFCC copper chlorine system and METROL SEA-CELL electrochlorinator.



An example of a severely fouled pipe from a system without a BFCC system.



Typical BFCC system control panel design.