Ionics* 3C-BPED Stack

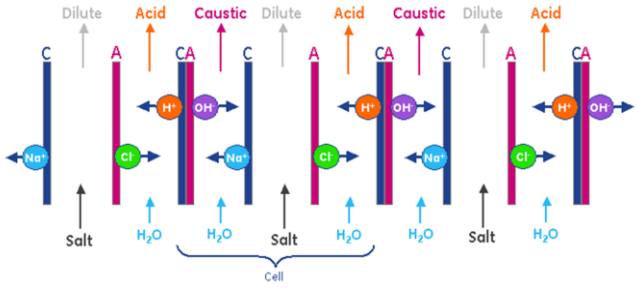
FACT SHEET

Three-Compartment Electrodialysis Stack w/ Bipolar Membranes

Description and Use

The Ionics 3C-BPED Stack is an electrodialysis stack, specially designed with three compartments and bipolar membranes. The stack can be used to split non-organic salts to produce separate acid and caustic streams.

Within the stack, an electric current is used to move anions through anion-selective membranes, cations through cation-selective membranes, and to split water into H+ and OH- ions. With the 3-compartment stack design, this generates two product streams (one acid and one caustic) and a dilute salt stream.



Product Features

- Up to 200 cells consisting of Ionics Bipolar Membranes (BP3) used for salt splitting and monopolar cation and anion exchange membranes.
- Total active membrane area of 64 m^2.
- Dual-entry stack to deliver consistent flow and pressure through the stack.
- Robust stack design that is capable of CIP and can also be easily removed and disassembled for cleaning, maintenance, and component replacement if needed. Spare parts can easily be stored on site.
- Integrated electrode chambers; no requirement for external electrode feed plumbing and control loop.

Materials of Construction

Welded Frame: ..... Painted Carbon Steel

Piping: ..... GF PROGEF PP

Anode: ..... Platinum with metal oxide coatings

Cathode: ..... Hastelloy C

Typical Performance

Under typical operating conditions of 375 A/m^2, the 3CBPED stack will convert salt in the following capacities:

NaCl à NaOH + HCl: ..... 34.0 kg/hr

Na_2SO_4 à NaOH + H_2SO_4: .....41.3 kg/hr

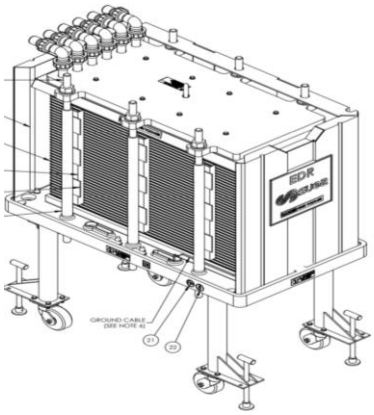
LiCl à LiOH + HCl: ..... 24.6 kg/hr

Li_2SO_4 à LiOH + H_2SO_4: ..... 31.9 kg/hr

With Na_2SO_4 feed, the acid and caustic streams produced by the 3C-BPED stack can have a concentration of up to 2N. With NaCl feed and the use of our acid-blocking anion membrane AR118N HCl concentrations up to 1.5N can be achieved.

Typical operation for optimizing efficiency and energy consumption of the 3C-BPED system results in product stream concentrations of 1 - 1.5N. Consult with Veolia for information on the stack and system design for specific applications.

Stack Design



Feed Stream Guidelines

Temperature: ..... 40 to 100ºF (4 to 38ºC)

Typical Feed: .....5-15% TDS

Operating Pressure:.....2-3 bar (28-43 psi)

Al:..... < 0.01 ppm

Mg, Ca: ..... < 0.5 ppm

Free Cl_2:..... < 0.5 ppm and < 2000 ppm-hr

TOC: ..... < 15 ppm

Veolia Water Technologies
Please contact us via:
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