

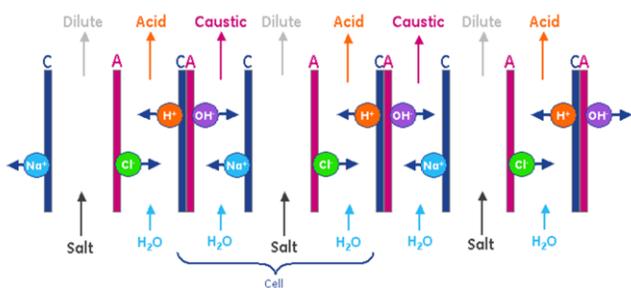
# Ionics\* 3CBPED Stack

## Three Compartment Electrodesialysis Stack w/ Bipolar Membranes

### Description and Use

The Ionics 3CBPED Stack is an electrodesialysis stack, specially-designed with three compartments and bipolar membranes. The stack can be used to split non-organic salts, producing 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<sup>+</sup> and OH<sup>-</sup> ions. With the 3-compartment stack design, this generates two product streams (one acid and one caustic) and a dilute salt stream.



### Product Features

- 200 cells of Ionics Bipolar Membranes used for salt splitting along with Ionics AR118U and CR61N.
- Total active membrane area of 64 m<sup>2</sup> per type
- 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

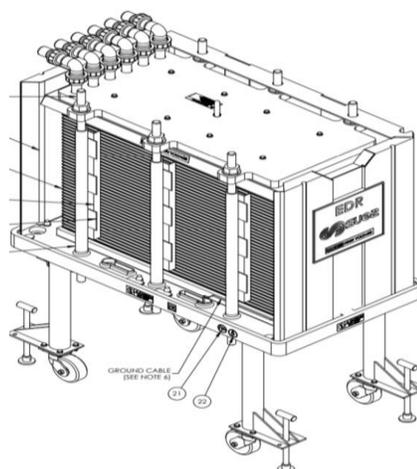
### Typical Performance

Under typical operating conditions of 375 A/m<sup>2</sup>, the 3CBPED stack will convert salt in the following capacities (others calculated in kg/hr by multiplying the equivalent weight of the salt by 0.582):

NaCl → NaOH + HCl: .....	34.0 kg/hr
Na <sub>2</sub> SO <sub>4</sub> → NaOH + H <sub>2</sub> SO <sub>4</sub> : .....	41.3 kg/hr
LiCl → LiOH + HCl: .....	24.6 kg/hr
Li <sub>2</sub> SO <sub>4</sub> → LiOH + H <sub>2</sub> SO <sub>4</sub> : .....	31.9 kg/hr

The acid and caustic streams produced by 3CBPED have a typical strength of 2N with the use of our acid blocking anion membrane, the AR118U. Consult with SUEZ for information on system design for specific applications.

### Stack Design



### Feed Stream Guidelines

Temperature: .....	40 to 100°F (4 to 38°C)
Typical Feed:..... Min 4% .....	Max: 90% of saturation
Operating Pressure:.....	2-3 bar (28-43 psi)
Turbidity: .....	5 NTU
TOC: .....	< 60 ppm (mg/l)
COD: .....	< 200 ppm (mg/l) as O <sub>2</sub>
Manganese, Aluminum: .....	< 0.1 ppm (mg/l)
Total Hardness: .....	< 10 ppm (mg/l)

Find a contact near you by visiting [www.suezwatertechnologies.com](http://www.suezwatertechnologies.com) and clicking on "Contact Us."

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