

ELECTRODIALYSIS SYSTEMS AND METHODS FOR ENERGY GENERATION AND WASTE TREATMENT

ABSTRACT

Reverse electrodialysis (RED) may be used to neutralize acid and caustic effluent waste streams, such as in the semiconductor industry. Power may be generated while waste streams are treated by converting chemical energy into electric energy. A bipolar membrane may be integrated into the RED system. Alternatively, an anion exchange membrane and a cation exchange membrane may be overlapped and used in place of a bipolar membrane. A cell pair with four membranes and four chambers, without a bipolar membrane, may also be implemented.

Figure 1