Claims

1. A process for self-cleaning an electrolytic cell, comprising:

   (i) introducing a stream of seawater into the electrolytic cell, wherein the electrolytic cell is configured for offshore, nearshore and coastal installations, and wherein the electrolytic cell includes:

      (i) at least one cathode electrode;

      (ii) at least one anode electrode,

      wherein the cathode electrode is substantially fully coated with a coating composition, and wherein the anode electrodes are is also substantially fully coated with the coating composition;

   (ii) applying a forward bias between the anode and the cathode electrodes at a first current density as seawater flows between the electrodes, and

   (iii) providing a reverse bias at the cathode electrode, wherein the reverse bias is provided at a second current density that is lower than the first current density, and wherein the reverse bias is provided at a periodic predetermined frequency,

   wherein the reverse bias facilitates generation of a small amount of hydrochloric acid in comparison to an amount of hydrochloric acid generated in the forward bias.

2. The process according to Claim 1, wherein the first current density is between 0.5 – 4 kA/m^2.

3. The process according to Claim 1, wherein the second current density is not less than approximately 5% of the first current density.

4. The process according to Claim 2, wherein the reverse bias is provided at a variable potential to achieve a substantially reduced second current density.

5. The process according to Claim 1, wherein the predetermined frequency is configured to prevent long-term accumulation of the deposits.

6. The process according to Claim 1, wherein the reverse bias is provided for a predetermined time period within each 24-hour period.

7. The process according to Claim 1, wherein the seawater flowing between the electrodes has a fixed salinity/conductivity.

8. The process according to claim 1, wherein the electrolytic cell is a tubular cell.

9. The process according to claim 8, wherein the tubular cell comprises an electrically conductive external tubular sleeve formed of a terminal cathode electrode, a terminal anode electrode, and an inner tubular bipolar electrode having a cathode end and an anode end, wherein the terminal electrodes and the bipolar electrode are substantially fully coated with a coating composition configured to withstand a periodic reversal in polarity.

10. The process according to claim 9, wherein the terminal electrodes have a diameter that is slightly larger than the bipolar electrode.

11. The process according to claim 9, wherein an annular space separates the terminal electrodes and the bipolar electrode.

12. The process according to claim 9, wherein the terminal anode and terminal cathode are separated by a central seal.

13. The process according to Claim 9, wherein each opposing end surface of the terminal electrodes comprise a seal.