The scale inhibitor, 2-hydroxy-4-methylbenzylphosphonic acid (HMBP) appears efficient for desalination plants of sea water. A concentration of 26.5 ppm (131 μ mol/L) prevents the calcareous magnesium deposits. The anti-scale effect of this inhibitor is achieved by chronoamperometry at imposed potential and complex impedance. SEM allows observation of the calcareous magnesium deposits with and without inhibitor 2-hydroxy-4-methylbenzylphosphonic acid (HMBP)