



## **In-situ analyses of CaCO<sub>3</sub> deposition on a metal surface**

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The industry in which saline fluids are transported such as desalination plants, oil recovery and power generation has to face the problems due to the presence of scale. Scale deposition has a detrimental effect on equipment so its control is a major concern for the industry and major costs are normally associated with it. A common method to reduce scale formation is the use of chemicals. Phosphorous and nitrogen compounds have been widely used against scale formation but the release of such compounds in the environment can strongly modify the biological cycle and can lead to the death of biological species. The environmental concerns lead the industry to find alternatives to reduce scale formation and “green” chemistry has become one important focus of the industry. The effects of a green inhibitor (Polymaleic acid) and one conventional inhibitor (Polyphosphinocarboxylic acid, PPCA) on calcium carbonate deposition were studied. A set up allowing in-situ, real time measurements of the deposition process was used. The specific changes in the morphology of the crystals of calcium carbonate was determined in order to have a better understanding of the mechanisms by which these inhibitors act on CaCO<sub>3</sub> deposition.