

QUARTZ CRYSTAL MICROBALANCE (QCM) USED IN CHEMICAL AND BIOLOGICAL APPLICATIONS IN REAL TIME

Gh.V. CIMPOCA^{1,2}, I. V. POPESCU^{1,2}

Abstract: *In this paper we develop and characterize sensors and applications with a quartz crystal microbalance (QCM). The sensitivity, selectivity, reproducibility and detection limit of QCM sensors have also been discussed. Quartz Crystals are used in Microbalances (QCM) as sensors to determine mass changes as a result of frequency changes and becoming into a good alternative analytical method in a great deal of applications such as biosensors, analysis of biomolecular interactions, study of bacterial adhesion at specific interfaces, pathogen and microorganism detection, study of polymer film-biomolecule or cell-substrate interactions, immunosensors and extensive use in fluids and polymer characterization. In general, the following steps are involved in sensor applications: (a) measurement of the appropriate sensors parameters; (b) extraction of the corresponding physical parameters related to the model selected for the specific application, starting from the measurements in the previous step; (c) interpretation of the physical, chemical and biological phenomena which enable to explain the extracted parameters of the selected model.*

Keywords: Quartz Crystal Microbalance, Newtonian liquids, solid/fluid interfaces

¹Professor at Valahia University of Targoviste, Academy of Romanian Scientists, 54 Splaiul Independenței, Bucharest, RO-050094, valcimpoca@yahoo.com

²Academy of Romanian Scientists, 54 Splaiul Independenței, Bucharest, RO-050094, ivpopes@yahoo.com