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[\[PDF \(604K\)\]](#) [\[References\]](#)**Determination of Linear Short Chain Aliphatic Aldehyde and Ketone Vapors in Air Using a Polystyrene-coated Quartz Crystal Nanobalance Sensor**[Abdolreza MIRMOHSENI](#)¹⁾²⁾ and [Ali OLAD](#)¹⁾²⁾*1) Polymer Research Technology Laboratory, Department of Applied Chemistry, Faculty of Chemistry, University of Tabriz**2) Research Institute for Fundamental Sciences***(Received August 13, 2009)****(Accepted November 4, 2009)**

A polystyrene coated quartz crystal nanobalance (QCN) sensor was developed for use in the determination of a number of linear short-chain aliphatic aldehyde and ketone vapors contained in air. The quartz crystal was modified by a thin-layer coating of a commercial grade general purpose polystyrene (GPPS) from Tabriz petrochemical company using a solution casting method. Determination was based on frequency shifts of the modified quartz crystal due to the adsorption of analytes at the surface of modified electrode in exposure to various concentrations of analytes. The frequency shift was found to have a linear relation to the concentration of analytes. Linear calibration curves were obtained for $7 - 70 \text{ mg l}^{-1}$ of analytes with correlation coefficients in the range of 0.9935 – 0.9989 and sensitivity factors in the range of 2.07 – 6.74 Hz/mg l^{-1} . A storage period of over three months showed no loss in the sensitivity and performance of the sensor.

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