

Theoretical description of the interactions between a mixture of vapors and a set of chemical sensors by variable temperature

Abdelaziz ABBAS, Ahcene BOUABDELLAH

Abstract: A sensor system is expected to detect gas concentrations of interest within low-ranges. The interactions between a sensor array and mixture of vapors hang not only on mixture composition and temperature but also on the partial sensitivities of the array elements. The aim of this paper is to find a useful equation in differential form that relates the change of sensors partial sensitivities to mixture component concentrations and temperature. This kind of equations is known in the thermodynamic of miscellaneous as equations of Gibbs–Duhém

Keywords : adsorption, chemical sensors, sensor array, mixture of vapors, functions of state, equations of Gibbs-Duhem