Vapor Pressure Determination by Chromatographic Technique –
Analysis of Performance and Accuracy and Results for Selected Groups of Compounds

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Vapor pressure plays a critically important role in a number of applications ranging from technology to ecology. Although there is a vast number of compounds with well established vapour pressures, measurements are still needed, especially in the pressure region below 100 Pa., where accurate experimental measurement represents a significant challenge. Measurements by traditional direct techniques tend to became increasingly labor and time consuming with decreasing pressure and interlaboratory comparisons show that uncertainty of results in low pressure region is high. Indirect determination of vapor pressures by capillary gas-liquid chromatography – relative retention time (GLC - RT) technique seems to be a suitable alternative to direct methods capable to function as either supplementary or (sometimes) even replacement means. Vapor pressures for reference compounds, indispensible for GLC - RT method, must be measured by a direct method (in our case static) or based on critical evaluation of literature data. Analysis of reference vapor pressures used for extracting the unknown vapor pressures from GLC - RT measurements revealed that in most cases methodology or data treatment was inadequate. In this paper improvements of GLC - RT techniques are suggested, considering also limitations of this method. Results for several groups of chemically similar compounds, including *n*-alkanes, alkylbenzenes, chlorobenzenes, phthalates, and polyaromatic hydrocarbons will be presented.