

Event Abstract

1480-8 Main Component (Solvent) as Internal Standard for Chromatographic Quantitative Analysis of Impurities**Event Type:** Posters**Presenter:** Siarhei Charapitsa - Belarus State University**Part of:** Gas Chromatography: Methods and Instrumentation**Start Time:** 03/12/2003 - Morning**Location:** Hall A1 - on the exhibit floor

Abstract: Gas-chromatographic method is proposed for quantitative analysis of impurities using main component (solvent) as internal standard. The impurity and main component concentrations were determined by the method of iterations in two stages.

First, a priori the mass concentration magnitude of the main component selected as internal standard was set equal to 100 %. Then impurity concentrations were calculated according to the next equation

$$X_i = K_i \cdot S_i \cdot X_{st} / S_{st}, \quad (1)$$

where S_i and S_{st} are the areas of the chromatographic peaks for i -th substance of interest and the peaks for the internal standard substance in the sample being analysed respectively; X_{st} is the mass part of the internal standard substance in the sample, Numeric values of the relative mass factors of detector response were obtained from the chromatographic data for calibrated mixture with known mass proportions of internal standard and components of interest according to:

$$K_i = S_{st}^{att} \cdot X_i^{att} / S_i^{att} \cdot X_{st}^{att}, \quad (2)$$

where S_i^{att} , S_{st}^{att} and X_i^{att} , X_{st}^{att} are the areas of chromatographic peaks and the mass parts for i -th substance of interest and internal standard substance respectively.

Second, the main component mass concentration was evaluated by

$$X_{st} = 100 - \sum(X_j), \quad (3)$$

where i, j is the summation index corresponding to the main component. Then we calculated the impurity concentrations by equation (1) with the corrected value of from eq. (3).

Experimental data obtained in accredited laboratories of Belarusian State Institute of Metrology (Cigarettes. Determination of nicotine in smoke condensates. ISO 10315) and Minsk winery and distillery «Kristall» (Vodka and ethanol. GC express-method for determination of toxic content. GOST 51698) had shown high metrology characteristics of the proposed method. Additional information could be found at the site www.unichrom.com

Coauthors: Siarhei Bychkov, Anton Kavalenka, Arkadzi Mazanik, Kirill Sholomitskii, Nataliya Selezmina

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