Full Paper _____ *Thematic Section:* Physicochemical Research.
Reference Object Identifier – ROI: jbc-02/17-52-12-134 *Subsection:* Analytical Chemistry.
Publication is available for discussion in the framework of the on-line Internet conference "*Butlerov readings*".
http://butlerov.com/synthesys/
Submitted on December 26, 2017.

Quality control of technical enriched anthracene for phenanthrene

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Keywords: analysis technique, gas chromatography-mass spectrometry, anthracene, phenanthrene.

Abstract

The proposed method of determination of impurities of phenanthrene to anthracene by GC/MS, using as solvents acetone and benzene. Determined metrological characteristics. Quantitative determination of impurities of phenanthrene in the sample enriched with anthracene. The comparison of the results obtained using as solvents acetone and benzene. The analysis was based on gas chromatography-mass spectrometer *GCMS-QP2010 Ultra* (*Shimadzu Corporation*, Japan). The proposed method for quantitative determination of impurities in technical phenanthrene enriched anthracene. The applicability of the method of gas chromatography-mass spectrometry for quality control of industrial designs anthracene. A comparison of methods using different solvents. According to the obtained metrological characteristics it is concluded that the solvent in the proposed method of analysis is preferable to use benzene since the same limiting value of the uncertainty of the result of analysis (r = 20%), the method using benzene guarantees a wider range of determined concentrations, which is associated with higher volatility of acetone compared to benzene, which leads to loss of sample. It is shown that the normalization of the calibration function for the peak naftothofene not required. In the future it is necessary to compare the efficiency, selectivity and quick testing were described in this paper methods and techniques based on the method of additives. Calibration functions are calculated using METROLOGY software developed at the Department of AHCMC KNRTU Professor Yusupov R. A. the criteria for the metrological study of measurement used: the number of reference samples – L; reliability analysis result – R; operating range – Cmin Cmax coefficients of the equation of the linear regression A, b, and their relative standard deviations Sa, Sb; the limiting value of the uncertainty analysis result in the relative view – r.

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