Chemometric technologies behind Alphachrom chromatographic analyzer

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ABSTRACT

A set of unique chemometric technologies are used for conversion of Microcolumn Liquid Chromatograph Alphachrom (MiLiChrom A-02) into chromatographic analyzer for pharmaceutical and forensic applications. This chromatograph is equipped with fast scanning UV detector and provides retention time and partial UV spectrum for component identification.

The function of the software:

- data synchronization
- advanced noise filtering
- peak detection using information from all detection channels
- peak identification according to time and spectrum
- peak quantification without on-line calibration
- check of peak homogeneity
- deconvolution of overlapped peaks by factor analysis or according to shape

Chemometric techniques applied facilitated creation of chromatographic analyzer for more than 500 most important drugs and narcotics; the size of the database permanently grows. The idea behind the approach is to calibrate the substance only once, and then standardized chromatographic system and validated device provides a warranty of calibration transferability. This approach is extremely effective in screening of suspected substances in forensic applications, as there is no need for standards and calibrations.