

**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

validation of the device and chromatographic system

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.