



Closer to Routine Analytical Laboratories

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Flow analysis without doubt has nowadays its solid place in modern chemical analysis. In sixties the concept of laboratory flow measurements with segmentation of flowing solutions had no competitors in the field of mechanization of analytical procedures of wet methods and was enthusiastically accepted especially by clinical laboratories, and also to some extent by environmental and agricultural laboratories. Very soon, however, invention of centrifugal analyzers, solid reagent systems, and particularly rapid development of discrete analyzers have eliminated segmented flow analysis from clinical laboratories.

A new impetus to flow analysis was given by invention of flow injection analysis in the middle of seventies. Because of possibilities of construction of FIA measuring set-ups from very simple available parts and commercially instruments almost in each laboratory, FIA very rapidly became the object of research interest for numerous research groups all over the world. In the first years after its invention number of papers on FIA accepted in analytical journals has grown almost exponentially. Practically all wet methods of analysis with spectroscopic and electrochemical detections begin to be reproduced in FIA systems. Later on the same situation has happened with its modification, SIA, which in expense of certain mechanical complication of the measuring system provided to injection techniques an important factor of more economic consumption of reagents. Very soon a unique features of injection analytical techniques have been documented in numerous papers, such as wide possibility of mechanization of difficult steps of sample pretreatment, significant shortening of analytical determinations or certain examples of possible use of kinetic discrimination for improvement of analytical procedures.

Why in these circumstances, however, in spite of thousands of research papers in scientific literature, FIA methods did not make, as yet, such a step towards routine analysis as CFA methods in sixties? What steps should be done in order to introduce more effectively FIA methods to routine laboratories as highly specialized instrumentation or as accessories improving operation of numerous sophisticated analytical instruments?

Flow injection methods are surely mature techniques. It is evident not only from a broad scientific literature, but also from number of commercial instruments available on the market. It seems that further promotion of these methods should be favored by several different factors. Flow injection methods should be wider and earlier introduced in university education of analytical chemistry - not only as still exotic method of instrumental analysis in the course of advanced analytical chemistry. Flow injection methods should be wider introduced to standard methods and legal regulations in each country, as without this step most analytical control laboratories will not accept these new procedures and instruments. Finally, it should be wider realized that for the price similar to that of simple chromatograph or AAS spectrometer, very rarely laboratories will be equipped in expensive commercial FIA analyzer, in spite of its potential numerous applications.