



## FLOW ANALYSIS WITH LUMINESCENCE DETECTION – AN OVERVIEW

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### **Introduction**

Flow techniques (FIA, SIA, SIC, MSFIA, LOV, etc.) connected with luminescence detection (fluorescence, chemiluminescence) are already well established analytical methods, which are characterized by several factors essential for research or routine analysis, e.g. simplicity of fundamental principles, inexpensive instrumentation, automated sampling and analytical procedures, low sample consumption and short analysis time. Connection of flow methods with luminescence detection can further increase the sensitivity and selectivity of these methods.

### **Materials and Methods**

Several examples of the use of luminescence detection in various applications connected to flow methods will be shown and discussed.

### **Results and Discussion**

For example, in vitro permeation studies are one of the methods widely used in pharmaceutical research in evaluation of drug interaction with membrane transporter proteins or drug-drug interactions. These tests are performed using cellular monolayers seeded on a semi-permeable membrane of commercially produced inserts. Solution of the tested drug is applied to apical chamber and the interactions are evaluated by the permeation to the basolateral chamber. The universal set-up is based on a sequential injection (SIA) manifold connected to the liberation unit, a Franz diffusion cell (FDC), with on-line fluorimetric detection, thus allowing to monitor automated drug transport to get more detailed kinetic profile. Automated flow analytical methods are recently also more and more used for long-term monitoring. Another application will show the advantage of microSIA method for fluorescence determination of zinc in seawater as a portable manifold for shipboard use.

### **Conclusion**

An overview of several other applications of the use of luminescence detection in flow techniques will be further discussed.

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