



B168 Capillary Electrophoresis Analysis of a Wide Variety of Seized Drugs on the Same Dynamically Coated Capillary

Ira S. Lurie, BA, MS, Drug Enforcement Administration, Special Testing and Research Laboratory, 22624 Dulles Summit Court, Dulles, VA 20166*

After attending this presentation, attendees will have learned a simple approach for the capillary electrophoresis analysis of a wide variety of seized drugs.

The methodology presented will greatly simplify the implementation of capillary electrophoresis for a forensic drug laboratory.

Methodology is presented for the capillary electrophoresis analysis of a wide variety of seized drugs on a single capillary, using multiple run buffers and diode array UV detection. Drug types analyzed include phenethylamines, cocaine, heroin, oxycodone, morphine, LSD, psilocybin, opium, and GHB-GBL. Both qualitative and quantitative analyses are achieved using run buffers that contain additives that provide for secondary equilibrium and/or dynamic coating of the capillary. Dynamic coating of the capillary surface is accomplished by rapid flushes of 0.1N sodium hydroxide/water, buffer containing polycation coating reagent, and a buffer containing polyanionic coating reagent (with or without cyclodextrin(s)) or a micellar coating reagent. Dynamic coating with a polyanionic coating reagent is used for the analysis of moderately basic seized drugs and moderately basic adulterants. The use of cyclodextrin in the run buffer not only allows for chiral analysis, but also greatly enhances separation selectivity for achiral solutes. A dynamically coated capillary with micellar coating reagent allows for the analysis of neutral and acid drugs (GHB, GBL and weakly basic, acidic and neutral adulterants). The above approach, which gives rise to a relatively high and robust electroosmotic flow at pH's below 7, allows for rapid, precise, and reproducible separations. For the various drugs examined, excellent linearity and migration time precision and good peak area precision (external and internal standard) is obtained. Quantitative results for synthetic mixtures and seized drugs agree with actual values, and also with results independently determined by other techniques. Both qualitative and quantitative analyses are greatly enhanced by the use of diode array UV detection which allows for automation of both library searches and peak purity.

Seized Drugs, Capillary Electrophoresis, Dynamically Coated Capillaries