TRAINING PROGRAM

Sample Development And Preparation In Analytical Laboratory

Course Description:

Sample preparation is still one of the more time-consuming, labor-intensive, and error-prone steps in the analytical cycle. Newer techniques that are faster, safer, easier to perform, provide better recovery and reproducibility, more easily automated, and, especially those that use smaller amounts of sample and solvent are receiving increased attention.

Who Should Attend?

Laboratory managers, analytical chemists, medical scientists, laboratory supervisors, research and development scientists, microbiologists, food technologists and quality assurance/control managers

Course Objectives:

By the end of this course delegates will be able to:

- The driving forces for improvements in sample preparation
- Trends in sample preparation technologies
- Miniaturization of liquid- and solid-phase extraction
- Nan fluidics and lab-on-a-chip technology
- New techniques such as stir-bar sorptive extraction and matrix solid phase extraction

Course Outline:

Part I

- Why do we need better sample preparation techniques?
- Sources of error generated during chromatographic analysis
- Time spent on typical chromatographic analysis; where improvements can be made
- What are the trends in sample preparation—not the same old grind!
- Why are miniaturized sample prep technologies getting so much attention?

Part II

- What are some of the newer extraction technologies for liquid samples?
- Are the days of separatory funnels are numbered?
- Micro-extractions Solid-phase microextractions Single-drop microextractions Levitated drop microextractions—how is this accomplished?
- Flow-injection extraction
- Membrane extraction technologies

Part III

- What's new in solid phase extraction?
- SPE micropipette tip extraction of microliter- and smaller-sized samples
- What problems can be solved with pipette-tip configurations?
- 96-well SPE plates—do they continue to have a role in high throughput sample prep automation of biological fluids
- What about 96-well filtration plates (compared to SPE plates)?
- On-line solid-phase extraction
- Stir-bar sorptive extraction

Part IV

- What are some new sample prep techniques for specialized applications?
- Nan fluidics and lab-on-a-chip technology
- Removal of proteins from biological fluids using affinity phases
- Matrix-solid phase dispersion for novel extractions