



# AL087: Sample Development & Preparation in Analytical Laboratory





## Training 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.

## Training Objective:

By the end of the training, participants will be able to:

- ✓ Have the driving forces for improvements in sample preparation
- ✓ Learn the trends in sample preparation technologies
- ✓ Learn the miniaturization of liquid- and solid-phase extraction
- ✓ Knowledgeable with nan fluidics and lab-on-a-chip technology
- ✓ Learn the new techniques such as stir-bar sorptive extraction and matrix solid phase extraction

## Training Designed for:

This course is intended for Laboratory Managers, Analytical Chemists, Medical Scientists, Laboratory Supervisors, Research and Development Scientists, Microbiologists, Food Technologists and Quality Assurance/Control Managers.

## Training Program:

### DAY ONE:

- ❖ PRE-TEST
- ❖ Introduction
- ❖ 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?

### DAY TWO:

- ❖ What are some of the newer extraction technologies for liquid samples?
- ❖ Are the days of separatory funnels numbered?
- ❖ Micro-extractions, solid-phase microextractions, single-drop microextractions, levitated drop microextractions – how is this accomplished?
- ❖ Flow-injection extraction
- ❖ Membrane extraction technologies

### DAY THREE:

- ❖ 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

#### DAY FOUR:

- ❖ What about 96-well filtration plates (compared to SPE plates)?
- ❖ On-line solid-phase extraction
- ❖ Stir-bar sorptive extraction
- ❖ What are some new sample prep techniques for specialized applications?

#### DAY FIVE:

- ❖ Nan fluidics and lab-on-a-chip technology
- ❖ Removal of proteins from biological fluids using affinity phases
- ❖ Matrix-solid phase dispersion for novel extractions
- ❖ Course Conclusion
- ❖ POST-TEST and EVALUATION

### Training Requirements:

“Hands-on practical sessions, equipment and software will be applied during the course if required and as per the client’s request.”

Please note that the above topics can be amended as per client’s learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

### Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Software & General Discussions
- Pre and Post Test

### Training Certificate(s):

Internationally recognized certificate(s) will be issued to each participant who completed the course.

### Training Fees:

**As per the course location** - This rate includes participant’s manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.





## Training Timings:

### Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:30	Recess (Prayer Break & Lunch)
13:30 - 15:00	Last Session

### For training registrations or in-house enquiries, please contact:

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Training & Career Development Department

