

## **Sample preparation – is it still a challenge?**

The second part of the 20th and 21st century seem to be a big race between analytical instruments manufacturers – who is the best, who can provide the highest sensitivity, who is the king of resolution? It is time of enormous challenges and hard work for engineers. We know that very well because BioAnalytic has sold analytical instruments since 1998. We are also aware that even if we have the most sophisticated analytical instrument, we are not able to carry out an analysis *just like that* without sample preparation. Each analyst must spend some time on sample preparation and this time cannot be wasted; therefore, we also provide tools for sample preparation.

What is your sample? Probably these are compounds in water, soil, air, food, biological fluids and tissue, hair etc. Very often sample preparation is a challenge because of matrix effects, due to very low analyte concentration, because of ..... please let us know other reasons as well.

We can show that there are some very useful tools, which can assist you in your daily work and your sample preparation will be no longer a waste of time.

Our meeting is a great opportunity to see how to make homogenization more efficient and faster. We will talk about modern ways of homogenization such as pressure cycling.

Solid phase extraction is perhaps the boring time of pipetting, waiting for sorbent drying and, unfortunately, in the end you have low or no reproducible recovery. Let us present extractors that will improve and make your work easier.

Do you use QuEChERS in food analysis? Great! We will show you how to shake them more efficiently and how to evaporate solvent faster without contamination.

QuEChERS in toxicology? Of course! Come and talk with us about this opportunity.

We would like to talk with you about solutions, tools, and benefits of modern sample preparation.

### **AGENDA:**

Workshop is split into four parts. Each part is dedicated specific sample preparation technique.

### **HIGH PRESSURE AND SAMPLE PREPARATION**

Products of:

**Pressure BioSciences, Inc. (PBI)** <http://www.pressurebiosciences.com/>

**Constant Systems, Ltd.** <http://www.constantsystems.com/>

**Pressure BioScience** is a life sciences tools company focused on the development of proprietary laboratory instrumentation and associated consumables based on the game-changing Pressure Cycling Technology ("PCT"). PCT is a patented, enabling technology platform that uses alternating cycles of hydrostatic pressure between ambient and ultra-high levels (up to 90,000 psi) to safely, conveniently and reproducibly control the actions of molecules in biological samples.

Our Pressure Cycling Technology employs a unique approach that we believe has the potential for broad applications in a number of established and emerging life sciences areas, including;

- ✓ Sample preparation for genomic, proteomic, and small molecule studies;
- ✓ Pathogen inactivation;
- ✓ Protein purification;
- ✓ Control of chemical (enzymatic) reactions; and
- ✓ Immunodiagnostics

**Constant Systems** Ltd design, manufacture and distribute high pressure cell disruptors. Our systems offer reliable and consistent cell disruption via the application of a constant pressure throughout the entirety of the processed sample, made possible by our use of a hydraulic control system. Once a sample is drawn into our high pressure cylinder, pressure is built until it reaches the value set by the user, at which point a piston forces the sample through a fixed orifice at high velocity before it impacts on a cooled heat exchange surface, after which it flows through an outlet for collection.

## **THE HEAT STABILIZATION TECHNOLOGY**

Products of:

**Denator AB** <http://www.denator.com/>

Based on their proprietary heat stabilization technology, Denator AB develops instruments and consumables to address needs in the life science and clinical research markets.

The company's products enable scientists to stabilize biological samples, such as tissue sections or cellular biopsies, from the moment of sampling. Normal degradation processes are stopped instantaneously and permanently, preventing the distortion of subsequent analytical results and so revealing the true *in vivo* status of every sample.

Since the introduction of the company's Stabilizer™ system, the scientific community has indicated a growing awareness of heat-stabilization as a process that ensures meaningful, high quality results in downstream analysis. Independent, peer-reviewed publications have demonstrated the ability not only to reveal *in vivo* profiles, but also to identify novel biological molecules that would previously have been lost due to rapid degradation. Such information is of particular significance for areas such as neuroscience and proteomics research where short-lived molecules and potential biomarkers need to be confidently identified to elucidate disease mechanisms and identify potential drug targets or disease markers.

## **NEW FACE of QuEChERS**

Products of:

**United Chemical Technology, Inc.** <https://www.unitedchem.com>

**Eberbach Corporation** <http://www.eberbachlabtools.com/>

**United Chemical Technology, Inc.** (UCT, Inc.) is a dedicated manufacturer of solid phase extraction and specialty chemical products. Through the years, our solid phase product offerings have expanded from columns to well plates, derivatizing reagents, QuEChERS also for toxicology, HPLC columns, flash columns, and manifolds. Our great Research & Development Department helps our users to solve application problems every day.

**Eberbach Corporation** is an Engineering and Manufacturing company designs and builds equipment for sample preparation products such as Shakers, Mixers, Blenders, Stirrers and more. Eberbach has over 150 years of experience in the scientific community and our products are used in a broad range of research and commercial applications, spanning biochemical, petrochemical, environmental, food, beverage and pharmaceuticals.

#### **FASTER AND EASIER SOLID PHASE EXTRACTION**

Products of:

**United Chemical Technology, Inc.** <https://www.unitedchem.com>

**Fluid Management Systems, Inc.** <http://www.fms-inc.com>

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**Fluid Management Systems, Inc.** designs, manufactures, and supports analytical instruments used by scientists to perform extraction, cleanup, fractionation and concentration of samples prior to chemical analysis. Automated sample preparation systems from FMS are designed to replace outdated, labor-intensive techniques that hinder laboratory productivity. Our Total Sample Preparation systems improve the efficiency of both laboratory personnel and expensive instrumentation. Our automated sample preparation systems allow laboratory personnel to reduce costs, shorten sample turnaround time and improve the quality and consistency of their results by eliminating the variability inherent with manual sample preparation methods.

FMS has established itself as the world leader in providing automated sample preparation systems in the field of Persistent Organic Pollutants (POPs) analysis.