



## SampleBench Automation

- For microESR

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## Increase Sample Throughput with SampleBench

SampleBench extends the capacity of your benchtop ESR instrument and provides reliable sample automation in an easy to use, cost-effective system. Let SampleBench take care of inserting the samples, so you can focus on the data.

Now, thanks to quick sample exchange times that maximize throughput and increase reliability in microESR measurements, productivity is significantly boosted. Just load, start and walk away!

The SampleBench automation system is available as an upgrade package for an existing microESR system or as a system bundle with a new microESR spectrometer.

### Key Advantages

- Maximize your throughput using automated, unattended nighttime & weekend operation.
- Increase your employee's productivity by relieving them from routine measurement duties.
- Receive fully reproducible and traceable results - automatically saved & stored by the system.
- The SampleBench system automatically and accurately controls efficient time management, moving and measuring samples in order to deliver microESR-based results in strictest accordance to operator defined and International Standard methods.
- Single supplier solution: microESR and SampleBench both provided by Bruker BioSpin. Service and support by Bruker BioSpin or by your local Bruker representative.



# ● A New Dimension for EPR Applications

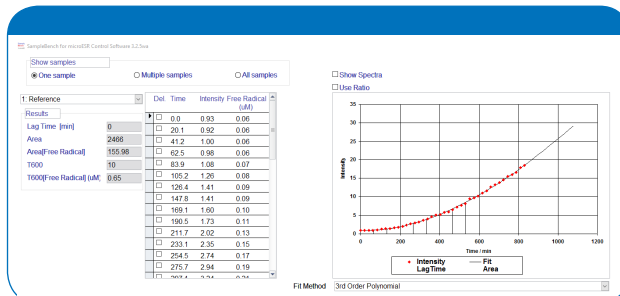
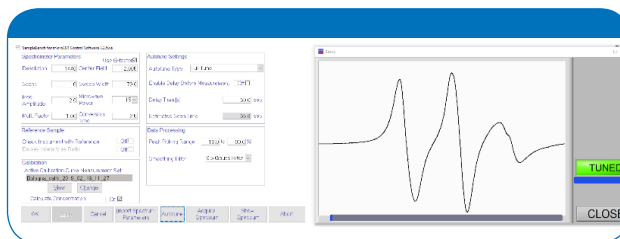
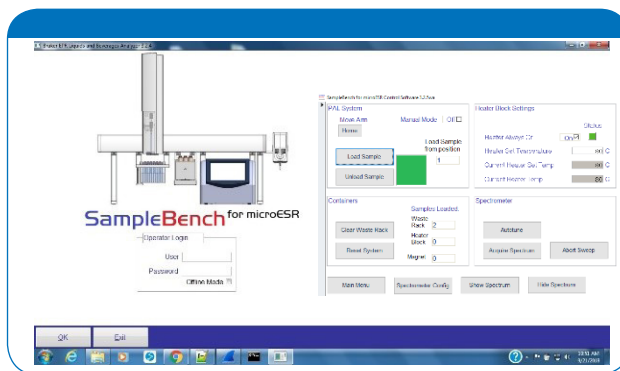
## Sample Automation Set-up

- x-y-z sample changer mounted on a robust platform that holds microESR, racks and heater module
- A simple 3 point "teaching" calibration takes only 5 minutes and allows the system to accurately and precisely position tubes in 230 locations.
- Heater module tempers samples from room temperature to 200° C
- Software-assisted tray status detection
- 96 position sample loading and waste racks
- 24 position heating module with sample agitation option
- 12 position calibration rack for applications where calibration standards are used
- Safety guard prevents user intervention within the working area during robotic operation



## SampleBench Automation Software Features

- Intuitive configuration of the microESR spectrometer settings directly from the SampleBench user interface
- Calibration protocol using standard samples containing free radicals
- Time course assay for kinetic analysis
- End-Point Assay with free radical determination for higher throughput assays
- Open session measurement for single or multi-measurement protocols
- Easy export of results to spreadsheet format
- Database storage and archiving of measurement sessions
- Variable operator configuration
- Activity and error logging for GLP compliance



## ● Example: Automating Oxidation Profiling with the microESR

The ability of a product to resist oxidation is directly related to its shelf life and is of major importance in the food and beverage industry.

The microESR provides a novel easy-workflow electron spin resonance spectroscopy (ESR) "shelf life test" that provides free radical metrics for the ability of beverages (e.g., beer, wine) or edible oils (e.g., canola, soy, palm, olive, etc.) to resist oxidation during accelerated heating (typically 30 minutes to 3 hours).

The assay uses the microESR benchtop spectrometer to measure free radical formation in the oil or liquid sample. The samples are incubated at a user defined time and temperature with a special reagent called a spin trap that reacts with free radicals to form microESR-detectable "free radical adducts". The concentration of free radical adducts directly relates to the oxidative resistance of the sample.

The assay produces an oxidation profile that yields three metrics of interest ("Lag Time", Free radical "End Point" and Free radical "Area" under the oxidation profile curve). Shorter Lag Times and higher free radical End Point and Area values indicate a lower oxidative resistance, and therefore shorter shelf life, for a product.



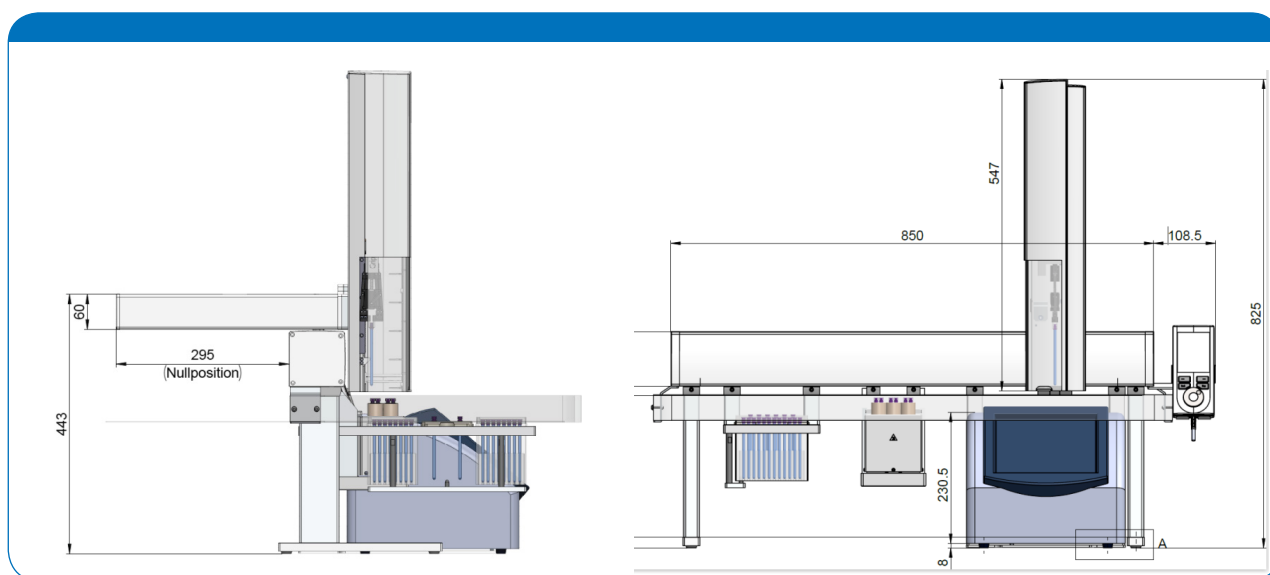
The SampleBench automation system combined with the microESR will provide you extensive new opportunities for oxidation profiling. A typical drawback of the oxidation profiling assay when performed manually, is the need for an operator to attend the instrument for hours at a time inserting samples. This limits the number of samples and formulations that you can measure in a day. Meanwhile, it occupies a full time operator. Using SampleBench will greatly increase sample throughput (up to 10 fold depending on assay configuration), allowing you to explore vast new possibilities for formulation improvement and quality control.



## ● Technical Specifications

### Technical data for the SampleBench

|                            |  |
|----------------------------|--|
| Weights and Dimensions:    |  |
| Autosampler Base assembly: | 30 kg<br>x-axis 850 mm; y-axis 512 mm; z-axis 534 mm   |
| microESR:                  | 9 kg   |
| Input Voltage:             | 110V / 230V  |
| Heater Block:              | 30 – 200°C   |
| Available Tube Diameters:  | O.D. 1.7 mm L x 103.5 mm<br>O.D. 5.0 mm L 103.5 mm:  |
| Racks (supplied):          | 1 x Input Sample Rack (96 position)<br>1 x Output Sample Rack (96 position)<br>1 x Calibration Sample Rack (12 position) |





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