

Automated Laboratory High Throughput Solid Phase Extraction

Fully automated
solid phase
extraction for various
applications.



Analysis of Contaminants

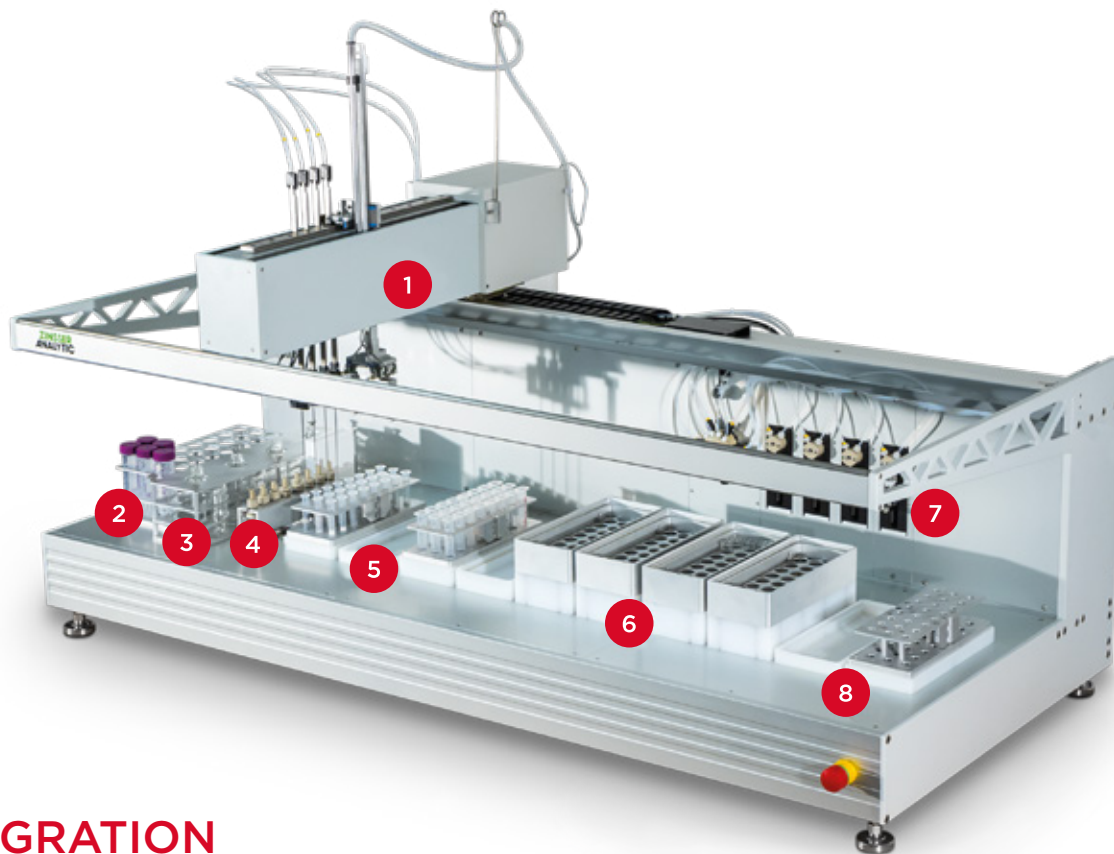
Zinsser Analytic invented a new automated system with different solid phase extraction (SPE) methods for various applications. The contaminant analysis system, analysing the following in complex food matrices, is shown as a recent example:

 Acrylamide  Cyanuric acid  Aflatoxin M1  Melamine  Aflatoxin B/G  Ochratoxin

With our SPE system you will achieve:

- ✓ Reproducible and reliable results
- ✓ Simplified and precise sample handling
- ✓ Increased throughput
- ✓ Unique variation of SPE methods





INTEGRATION

- 1 Robotic arm with 4 standard tips and gripper for racks.
- 2 Source rack with 24 positions of prepared sample solution.
- 3 Solvent rack for frequently used solvents, which are not system liquids.
- 4 Pressure spots for the positive pressure SPE.
- 5 Waste and drip tray for cartridges.
- 6 Elution position for cartridges into desired vials.
- 7 Syringe pumps and six-way-valve for six system liquids and washing liquid.
- 8 Cartridge rack park.



CERTIFIED AUTOMATABLE PROCESSES

The automated high throughput SPE system can perform different SPE methods regarding the specific requirements of the sample.

As an example the acrylamide and cyanuric acid SPE processes are shown below. The solvent could either be processed through gravity based drip through or pushed through the cartridge with positive pressure, pulsed positive pressure or with vacuum supported suction. Single run (e.g. cyanuric acid) and multiple run (e.g. acrylamide) of SPE is possible with pipetting out of the first collection vessels into the new cartridges.

Acrylamide

A: ISOLUTE COLUMN

1. Conditioning with MeOH (drip through)
2. Conditioning with water (drip through)
3. Pipette sample (drip through)
4. Elute 0.5 mL into waste (positive pressure)
5. Elute 1.5 mL into vials (positive pressure)
6. Elute again with water (vacuum)



B: ENV + COLUMN

1. Conditioning with MeOH (drip through)
2. Conditioning with water (drip through)
3. Pipette isolate eluate (drip through)
4. Let set
5. Wash twice with water (drip through)
6. Elute 1.5 mL with MeOH/water into waste (60/40, v/v, positive pressure)
7. Elute with 0.5 mL with MeOH/water (60/40, v/v, vacuum)
8. Clearance of racks

Cyanuric Acid

1. Conditioning with formic acid 1% (drip through)
2. Conditioning with NH₄/MeOH (drip through)
3. Conditioning with NH₄/MeOH (drip through)
4. Conditioning with water (drip through)
5. Mix sample with NH₄/MeOH in vials
6. Pipette sample (drip through)
7. Wash twice with water (drip through)
8. Wash twice with MeOH (drip through)
9. Elute with formic acid (vacuum)
10. Clearance of racks

Between **24 and 48 SPE columns** can be processed in one run, depending on the cartridge and collection vessel size taking one to two hours.

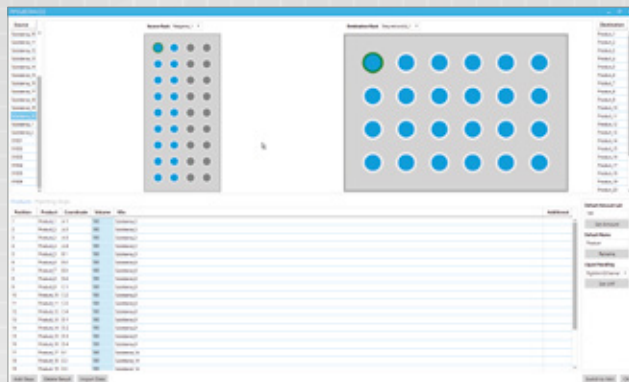
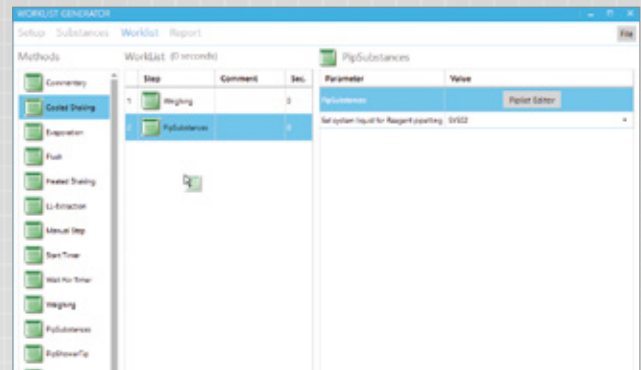
Thus a throughput of **92 to 384 samples** within a working day (8 h) is possible.

SOFTWARE SOLUTION FOR YOUR SPECIFIC PROCESS

Every process step is designed modularly. Therefore a variety of processes, using differing powders, chemicals and solvents, may be completed. The customized sequential arrangement of the process is composed with a specified MS Excel® file or our Worklist-Generator which is then executed with our WinLissy®-software.

Worklist-Generator

With the Worklist-Generator you can create individual processes with many adjustable parameters for sub steps. Drag and drop the needed methods to the desired positions of the worklist.

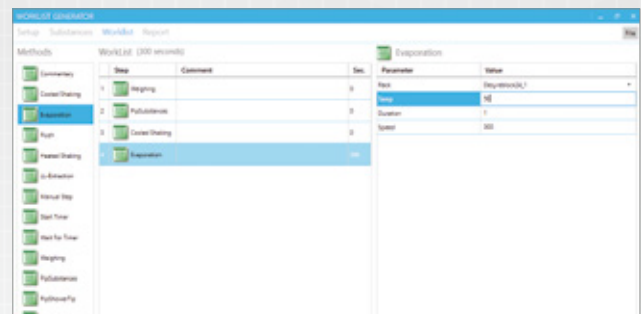


Pipetting-Editor

For pipetting steps, the Pipetting-Editor is opened for the definition of racks and number of steps. Every filled position is indicated blue and the selected positions are highlighted green.

Method Definition

Input the desired time or anything the method requires, while you are defining the process.



WinLissy®-Software

With our WinLissy®-software every prepared worklist of the Worklist-Generator is executable. Communication with customer specific databases or LIMS is easily conceivable.

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