

**SAM-THE-050**

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## **SAMPLE PREPARATION**

### **Automation in Analytical Laboratories**

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#### **• Context**

High throughput efficiency and time consuming are two key parameters for routine laboratories in charge of residue and contaminant analysis. On this point of view, conventional method developments using manual and non automated procedures may be penalising. Today, most of analytical sample preparation techniques including extraction and purification steps, for instance Accelerated Solvent Extraction or SPE on single-use cartridges, which are widely used in this field, may be in some extent adapted for automated procedures pending appropriate equipment which are now commercially available. Finally, such automation in analytical laboratories offers the possibility to perform larger number of analysis (for routine laboratories) as well as to save time for further data analysis and interpretation (for laboratories also involved in research activities).

#### **• General objective(s)**

The general objective of this teaching module is to present and describe the main current technologies permitting to automate some common sample preparation procedures for analytical laboratories. The specific objectives will be i) to give a panorama of the various extraction and purification methods that can be concerned by this automation, and ii) some real-case illustrations of commercially available devices permitting such automation which are already in use in some laboratories.

#### **• Main items**

Extraction / Purification / Automation / High throughput

#### **• Pedagogical objectives**

- ✓ Be sensibilised to the advantages of automation
- ✓ Be aware about the main sample preparation techniques susceptible to be automated
- ✓ Know some examples of existing equipments permitting such automation

#### **• Pedagogical tools**

- ✓ PowerPoint Slide-show

#### **• Duration**

- ✓ 1.5 hour

#### **• Pre-requisite**

- ✓ Sample preparation procedures (SAM-THE-010, 020, 030 & 040)