The automated laboratory

A single automated process enhancing your laboratory environment performance
Laboratory solutions

Sample announcement
Samples can be either delivered to the automated laboratory manually by shift personnel or automatically by airtube systems. In the latter case, samples will be ready for sample preparation after automatic unpacking.

Sample preparation
Samples can be in the form of a solid metal (e.g. lollipop or rounds) or powder (e.g. slag). Depending on the measurement requirements, metals may need to be cooled down, then milled or ground, prior to analysis. If the sample is powdered, it would need crushing, milling and pressing prior to analysis.

Sample analysis
Several techniques can be integrated in the automated laboratory to perform a complete characterization of your sample:

- Accurate chemical analysis of major and minor elements by X-ray fluorescence spectrometry (XRF) with additional light-element analysis by optical emission spectrometry (OES)
- Analysis of structural properties by X-ray diffraction analysis (XRD)
- 8 and 9 radiation detection to comply with norms and certifications
- Sample surface analysis to detect surface flaws and check pressed powder sample quality

Select your option

- Airtube systems
- Manual announcement
- Bulk announcement
- Automated announcement
- Barcode (RFiD)

Select your option

- Solid samples
  - weighing
  - cooling
  - milling
  - grinding
- Automatic metal chip generation for combustion analysis

- Powder samples
  - weighing
  - cooling
  - milling
  - grinding

- Automated announcement
- Barcode (RFiD)

Select your option

- XRF analysis
- XRD analysis
- OES analysis
- Radioactivity analysis
- Machine vision sample surface analysis
The automated laboratory can be integrated in existing laboratory environments. Otherwise, a container-based laboratory can be placed anywhere to expand the laboratory installation, giving the customers a pre-installed and ‘ready-to-go’ solution. The size of the containers can be customized based on the complexity of the automation project.

SamTracs (sample tracking and analysis control system) is a PANalytical software package for the efficient management of automated analysis installations.

SamTracs allows easy user interface, sub-processing, and results reporting procedures to be tailored precisely to individual needs.
The automated laboratory

The concept

Within an automated laboratory, the complete sample transportation, preparation, and analysis process can be automated. Our automation projects can cover all steps involved in process control and quality control:

- Sample treatment before sending
- Sample transportation to and within the laboratory
- Preparation of the sample material
- Sample analysis and results distribution
- Control of the automated laboratory
- Container solutions

The automated laboratory is a multidisciplinary strategy to increase the productivity and reduce lab process cycle times of our customers by making the best use of technology. By investing in an automated laboratory, customers will get the benefit of fast return of investments and higher turnovers as well as saving manpower that could be allocated in other departments.

Based on customer needs, the automated laboratory is designed for the customer and with the customer. The level of equipment varies from ‘single lines’ (one preparation machine coupled with one analysis system) to multiple lines where a number of preparation machines can be coupled to a number of analysis systems.

PANalytical works with carefully selected project partners with specialist expertise.

Project partners are usually chosen in cooperation with the customer to provide tailored solutions for individual client needs. In choosing project partners, we take into consideration not only technical capabilities, but also support, service, spare parts and all the other factors that contribute to a reliable backup.

PANalytical is not only the world’s leading supplier for X-ray instruments, but also recognizes also the added value of X-ray systems in an integrated automated laboratory. We have built automation projects since 1994, surpassing 90 installations worldwide.