

The automated laboratory

**Arcelor Mittal
Ruhrort**

Turnkey metals automation



Module selection grid

Sample announcement ▼	Sample preparation ▼	Analysis methods ▼	Control and communication ▼	Environment ▼
Airtube systems	Solid samples - weighing - cooling - milling - grinding	XRF analysis	SamTracs Sample tracking and control system	Turnkey - customized (container-based buildings)
Manual announcement	Automatic metal chip generation for combustion analysis	XRD analysis	LIMS Laboratory information management system	Turnkey - standard (20 - 30 feet based container solutions)
Bulk announcement	Powder samples - weighing - cooling - milling - grinding	OES analysis	Level 2 communication	In-house placement
Automated announcement	Automated announcement	Radioactivity analysis	Customized analysis results transmission and printing	
Barcode (RFiD)	Barcode (RFiD)	Machine vision sample surface analysis	Automatic signage & narrowcasting	

Modules marked blue were used in this project

The automated laboratory

The solution

After the old PANalytical automated laboratory at Arcelor Mittal had been working 24/7 for more than 20 years, the company needed a new laboratory for their steel analyses.

The development of the new laboratory was a turn-key project, including the laboratory building itself, the automation system and air tube transportation for 7 lines, connecting to 2 separate factories. The new laboratory has been fully working since March 2014.

All contracting, supply, engineering, installation and commissioning services were part of PANalytical's scope of delivery. PANalytical was chosen for its technical know-how, the reliability of the systems, and for the quality of its customer support. This unique laboratory was designed and built in close cooperation with Arcelor Mittal.

Automated process

Both raw iron, steel and slag samples are treated automatically. Sample cooling, milling and sample analysis surface inspection are integrated in the automation setup. All analysis data (including information about the sample surface and the processing time) are collected and checked using PANalytical's SPARCS LIMS package, which also communicates with the Level 2 production control system. Contamination-free production and collection of chips for combustion-based analysis is an integral part of the automation.

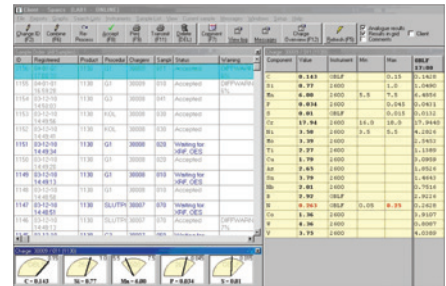
The concept

The automated laboratory is a multi-disciplinary strategy to increase the productivity and reduce lab process cycle times of our customers by making the best use of technology. Based on customer needs, the automated laboratory is designed for the customer and with the customer.

Our automation projects can cover all steps involved in the process control and quality control.

Since 1994 we have built automation projects, surpassing 90 installations worldwide.

Arcelor Mittal Ruhrort



Parts of the automated laboratory:

- A complete 300 m² laboratory building including laboratory, kitchen, toilets, workshop and storage rooms
- 7 air tube lines to two factories, including 2000 m of total tube length and a transport speed of 20 m/s
- Two completely redundant automated laboratories, connected to each other to form one automation with built-in redundancy
- Cell-structured system for optimal versatility with automatic rerouting of samples when units are serviced or not available
- Fully automated control of the complete system
- All automated and non-automated analyzers are connected to the SPARCS LIMS system for easy data storage, reporting and communications
- Automatic sample production for off-line combustion analyzers
- All results communicate to the Level 2 systems of the steel plant



Global and near



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