

The automated laboratory

Small automation for polymers

Teijin Aramid

Delfzijl, NL



Module selection grid

Sample announcement ▼	Sample preparation ▼	Analysis methods ▼	Control and communication ▼	Environment ▼
Airtube systems	Solid samples - weighing - cooling - milling - grinding	XRF analysis	SamTracs <i>Sample tracking and control system</i>	Turnkey - customized (container-based buildings)
Manual announcement	Automatic metal chip generation for combustion analysis	XRD analysis	LIMS <i>Laboratory information management system</i>	Turnkey - standard (20 - 30 feet based container solutions)
Bulk announcement	Powder samples - weighing - cooling - pressing - 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

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The solution

For the XRF analysis of their famous aramid product, a so-called superfiber, Teijin Aramid needed a small automated laboratory in their production facility in Delfzijl, the Netherlands.

The ability of handling a batch of 30 production materials samples unattended after one announcement, was required.

PANalytical has designed a very compact setup combining a Herzog sample press and a PANalytical industrial XRF analyzer. The already existing specialized color-checking camera from Minolta has been incorporated into this custom-made automation.

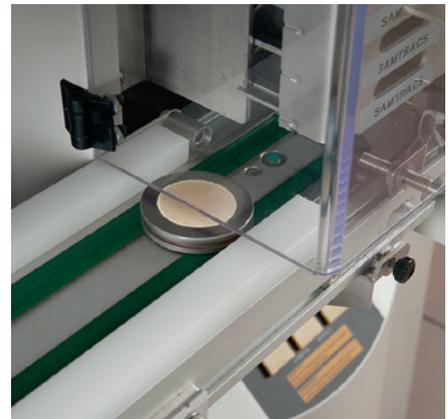
Automated process

During the production of aramid, a patented high-strength fiber, the quality of the product needs to be checked using XRF technology. Additionally, the color of the product gives valuable information about the product quality. To fulfill these requirements an automated sample press was combined with a PANalytical CubiX XRF instrument and a color camera.

The sample is transported on a specially adapted conveyor belt that incorporates a small lift unit, able to move samples off the conveyor and under the special color camera. This way each sample, before analysis, will be automatically checked for its color. The camera, which had originally not been automatable, has been included in the automated setup by PANalytical custom-made software.

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The press unit is fitted with a 30-position sample carousel in order to be able to announce a whole batch of samples. The complete automation is controlled by PANalytical's SamTracs control system.

Parts of the automated laboratory:

- Herzog HP-PS sample press with 30-position magazine
- PANalytical custom-made conveyor belt with lift
- PANalytical CubiX XRF analyzer
- EdNiCon dedusting unit
- SamTracs sample tracking and control system

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.

We have built automation projects since 1994, surpassing 90 installations worldwide.

Global and near



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