

**Research Institute:**

PTS Heidenau  
Pirnaer Str. 37  
01809 Heidenau

**Head of the research institute:**

Dr. Frank Miletzky

**Project leader:**

Björn Zimmermann  
Tel: 03529 / 551-687  
Fax: 03529 / 551-889  
E-Mail: bjoern.zimmermann@ptspaper.de

Internet: [www.ptspaper.de](http://www.ptspaper.de)

**Research area: General aims**

Production economy // Monitoring and control systems

**Key words:**

PBS, Balemat, measuring system, recovered paper, quality, control, moisture, content, brightness

**TITLE:****Transformation of the Paper-Bale-Sensor II Prototype Balemate System (Recovered Paper Monitoring Station) into PBS III - Balemate Automatic****Background/Problem area**

Recovered paper is the most important raw material in the German paper industry. The total usage is rising and is actually at 16.5 Mio tons per annum in Germany. This tendency will proceed in the future because there are economic and ecological reasons but also a negotiated agreement of the European paper industry to reuse the recovered paper.

With the rising requisition for recovered paper and the extensive collection there are new requirements to the recovered paper quality. One danger is that with the extensive collection mostly from households the recovered paper quality will decrease. Furthermore the quality requirements for the end products are rising and recovered paper is also more and more used for higher quality papers. This also increases the quality requirements for the recovered papers.

PTS has developed a control system for the incoming goods inspection of recovered papers that are mostly delivered as bales. The system is based on the NIR (near infra-red) technology and has been transferred into practice. For the inspection a hole gets drilled into the bale and then is inspected by the measuring lance. The measurement calculates values for the paper moisture, the ash and plastics content and the mechanical and chemical pulp relation.

**Objectives/Research results**

The aim of the project is the development of an innovative fully automated handling, drilling and measuring system to determine important quality parameters during incoming goods inspection of recovered paper bales. The main part of the system is the hand-held unit brought successfully into the market by PTS and Sentronic. At the company MM-Karton GmbH in Gernsbach it was demonstrated how the measuring could be assisted by a half automated drilling and handling unit.

The new measuring system must be robust for industrial environment, must have a long time stable measuring accuracy, low maintenance and service friendly. To reach this the project partners will redevelop some components and integrate them into a new measuring unit. Furthermore the system will not only measure the today implemented parameters but also some optical parameters like color and brightness. During the project PTS will explore the possibilities to additionally determine the content of additive components like sizing agents, wet strength agents or binder.

**Application/Economic benefits**

The system will be used to control the recovered paper quality (R&D, production control) in paper mills during incoming goods inspection.

The economic relevance lays in the shortening of evaluation time, the reduction of manual handling and in the enhancement of information variety about the recovered paper bale quality that can be used to optimize the production process control. And last but not least the product PBS-III will result in sales revenue for Sentronic, Haarla and PTS.

**Period of time: 01.01.2015 – 31.12.2015**

**Remarks**

The RTD project ZIM-KF 2037921DB4 is being funded by German the Federal Ministry of Economic Affairs and Energy (BMWi).