

**Final Scientific Report of the Conference
“COST-PTS Symposium Simulation and
Process Control for the Paper industry”**

Conference organised within

COST E36

**"Modelling and Simulation in the Pulp &
Paper Industry "**

9 – 10 March 2004

PTS Munich

COST Action E36

Modelling and Simulation in the Pulp & Paper Industry

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Simulation and Process Control for the Paper Industry

Current situation

The pulp and paper industry is currently faced with heavy economic pressure. The shut down of mills and a strong tendency to form even bigger companies clearly reflects the impact of a tight market on the paper industry. Within the mills ever less people are confronted with processes of growing complexity. Sufficient staffs of technologists are missing in many mills. As a consequence even today trial and error appears to be the most common approach in this traditional industry. Mill personnel are fully occupied with the task of keeping the production up. No time is left for systematic approaches towards an optimised state of the production process. A lot of profit and time is lost this way.

In this context modelling and simulation will be of major importance for the paper industry in the near future. It provides the industry with new answers based on a far better understanding of the process. This know how is "built into" the process either through an optimised process design or an intelligent process control approach. In addition it can help to identify the causes for operational problems and suggest solutions.

The COST Action E36 on modelling and simulation in the pulp and paper industry is a promising approach to foster this development. The expertise of the European paper industry is brought together in this action. It will contribute heavily to the development and acceptance of modelling and simulation approaches in the pulp and paper industry. A real network of excellence will be created and will lead to numerous successful follow up activities as has been proven by other COST Actions.

Focus of the symposium

Next to all European scientists and technologists that work in this field have gathered at PTS on 9th and 10th of March to talk about their work and exchange knowledge and attitudes concerning modelling and simulation.

Twenty-five papers have been presented during the symposium; held by scientists from research institutes, universities and by engineers of machinery suppliers in front of 75 participants. The symposium that was situated in the beginning of the COST Action E 36 served as an ideal option to define the state modelling and simulation in pulp and paper has currently reached. A cornerstone was set to build further

scientific and technological work upon. Against the background of what has been presented during the two days clusters can be formed about topics addressed in the papers. The following clusters could be identified:

- spreadsheet based object oriented process models,
- tools for monitoring and evaluation of online data,
- model based process optimisation and
- in smaller number, some approaches to model single process steps as the modelisation of the press- or drying section.

It can clearly be stated, that there is a large trend to upgrade static simulation tools by integration of dynamic abilities into the simulators used. The big issue to be solved in this context is the calibration and validation of simulation models. The aim must be to define quality parameters for the validity of both, steady state and dynamic simulation models.

Though there are certain methods available to simulate and optimise processes, it is the quality within the modelling of the processes that is often missing. The question therefore is: will the developers be continuing to build models on weak physical fundamentals trying to bridge with black boxes the swamp of uncertainty or can we develop proper generic models of key processes that ideally will be available for common use within the industry.

There are already some solutions "online" in the pulp and paper process but a broad rush of the industry towards these solutions has yet not occurred. Still many papermakers already use this tools - even without knowing it.

Outlook

All possible users of simulation technologies in the pulp and paper industry have to define their position towards modelling, simulation and optimisation in terms of staff, software and total involvement. Interesting enough, most of the large paper companies, as most of the suppliers, have not taken this decision yet.

The most important task for all software and solution developers is to show the possible economical benefit the pulp and paper industry has by using the tools developed.

COST E 36 will promote this development within the next four years. The vision for the final conference therefore is to have many paper mills doing presentations about their success achieved with the tools up to then developed.

Tab. 1 Attendance List of the Conference

Family Name	First Name	Country
Alonso	Alvaro	Spain
Andersson	Magnus	Sweden
Aust	Richard	Germany
Bamberger	Wolfgang	Germany
Bienert	Christian	Germany
Blanco	Angeles	Spain
Braun	Edgar	Germany
Brown	Martin	United Kingdom
Burchardt	Lothar	Germany
Charignon	Sebastien	France
Cordier	Oliver	Germany
Deul	Antoin	USA
Dhak	Janice	Sweden
Dietz	Wolfram	Germany
Dinkel	Markus	Germany
Dochain	Denis	Belgium
Edelmann	Kari	Finland
Entova	Tegeza	Czech Republic
Eymin Petot	Guy	France
Fisera	Peter	Austria
Goedsche	Frank	Germany
Hagberg	Mats	Sweden
Huhtelin	Taisto	Finland
Jangehammar	Thomas	Sweden
Jansson	Johan	Sweden
Joore	Leon	Netherlands
Juntunen	Jyrki	Finland
Juslin	Kaj	Finland

Tab. 2 Attendance List of the Conference (continued)

Family Name	First Name,	Country
Kamml	Georg	Germany
Kappen	Johannes	Germany
Kodre	Bernhard	Austria
Labidi	Jalel	Spain
Lamprecht	Jens-Christian	Germany
Lassila	Jari	Finland
Leiviska	Kauko	Finland
Lie	Bernt	Norway
Lo Cascio	Dario M.R.	Netherlands
Lumpe	Cornelia	Netherlands
Lundberg	Thor-Leif	Sweden
Manninen	Jussi	Finland
Mayer	Martin	Austria
Meinl	Gerd	Germany
Meissen	Reinhard	Germany
Messmer	Markus	Germany
Mitreski	Michael	Czech Republic
Mönnigmann	Ralf	Germany
Moze	Adolf	Slovenia
Naydowski	Christian	Italy
Negro	Carlos	Spain
Östlund	Ida	Sweden
Paunonen	Sara	Finland
Plevnik	Gernot	Austria
Post	Hermann- Josef	Germany
Pulkkinen	Petteri	Finland

Tab. 3 Attendance List of the Conference (continued)

Family Name	First Name,	Country
Ravnjak	David	Slovenia
Reiter	Heidemarie	Austria
Rief	Stefan	Germany
Rintelen	Markus	Germany
Ritala	Risto	Finland
Rudfeldt	Carin	Sweden
Ruiz	Jean	France
Runkler	Thomas	Germany
Samuelsson	Åsa	Sweden
San Pio	Ignacio	Spain
Sjöström	Lars	Sweden
Tautz	Wilfried	Germany
Uhlig	Harald	Austria
Villforth	Klaus	Germany
Wätzig	Dietmar	Germany
Zelm	Ronald	Germany
Zhao	Shulei	Germany