



***Fibre suspension flow modelling: a key for innovation and competitiveness
in the pulp & paper industry***

FP1005

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End date: 10/05/2015

Year: 1

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Scientific context and objectives (1/2)

- **Background/Problem statement:** CFD is far from being a mature research tool in the pulp and paper industry. The Action aims at showing how CFD can help to solve practical problems and decrease energy consumption of papermaking unit operations
- **Brief reminder of MoU objectives:**
 - Main: to promote and disseminate validated experimental and numerical techniques in paper-making industry.
 - Secondary: Knowledge Database for selected test problems, BPG for modeling fibre suspensions.

Scientific context and objectives (2/2)

- **Research directions:**
 - Promotion, dissemination and validation of CFD in paper industry will be achieved by joint meetings, written documents from meetings, public Knowledge Base repository.
 - The Action will enhance transfer of innovative solutions to industry, but also the flow of information from practitioners to scientists through STSMs, training schools, workshops.
 - The Action will offer a forum to solve test cases relevant to industry and to compare simulated results to experiments.

Working groups

- **WG 1: Experimental Methods**

Development and validation of experimental techniques for measurements of dilute or dense fibre suspensions and non-Newtonian media.

- **WG 2: Rheology Modelling**

Predicting pulp behavior with single-phase continuum rheology (generalized-Newtonian viscosity models and fully non-Newtonian rheology models).

- **WG 3: Multi-phase flow modelling**

Modelling fibre suspension flows with multi-phase Eulerian-Eulerian/Lagrangian models (averaged phase equations, individual trajectory tracking).

Future plans and challenges

- No significant deviations from work plan expected
- Critical phases to be implemented or topics to be addressed during the 2nd year:
 - Push production of preliminary experimental measurements and simulation data for the Knowledge Base
 - Increase participation of industrial practitioners (challenging task!)
 - Stimulate production of collaborative scientific papers through WG meetings
 - Stimulate STSMs