



SUNPAP Newsletter 1
Scale-up Nano particles in Modern Papermaking

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Welcome to SUNPAP



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Welcome to the first SUNPAP newsletter. Our aim is to give you a basis view of our SUNPAP project. Scale-up Nano particles in Modern Papermaking, SUNPAP, is a new Large-scale Integrating Project in the European Community's 7th Framework Programme under the NMP program. The three year project started 1st of July, 2009.

The SUNPAP project has started well and is proceeding according to the plans. The general aim is to direct the research to more sustainable use of materials and production technologies in modern paper/board making. The project has four research modules which have strong synergy and are well integrated with each others.

The **Module 1** is dealing with the whole value chain including market needs, sustainability assessments and recyclability and biodegradability studies. The sustainability part was started by defining a suitable methodology to be used when carrying out the sustainability assessment during the whole SUNPAP project. The Module 1 communicates not only to other Modules within SUNPAP project but also to the general public being interested in developing suitable methodologies for assessing sustainability in the complex field of nanotechnology. This first public report is also available in the SUNPAP web site. The data collection diagram essential for the sustainability assessment gives also some view about the structure of the project. The data collection (Figure) is a critical part of the success of the project as it will feed data to the sustainability analysis conducted in the project. The sustainability analysis includes environmental, economic and social aspects.

The heart of the project is the **Module 2** where we are scaling up the production of native and functionalized nano fibril celluloses. The first aim in the research work with the cellulose based nano material production is to identify optimal pulp raw material and pre-treatment conditions for energy effective NFC preparation. The experimental trials with different chemical, enzymatic and mechanical pre-treatment processes are on-going. The main target of the project is to scale up the technologies to produce natural or functionalized nano fibril cellulose. The engineering requirements of the pilot-scale NFC

preparation process and equipment with optimized energy impact have been studied and will be available for the project group in PTS.

The industrial product targets for the different end use applications are set, studied and demonstrated in **Module 3**. The quality of nano fibril cellulose is targeted for different current and novel industrial paper and board products. The application of these nano materials is studied first in small scale but will also be demonstrated in large scale. The different paper and board applications in five different end-use areas will be studied using native or modified nano fibril cellulose in order to increase strength or give new functional features to the end products.

Module 4 is dealing with the health and safety issues in nano fibril cellulose production, application and end products which will be studied in cooperation with all other modules.

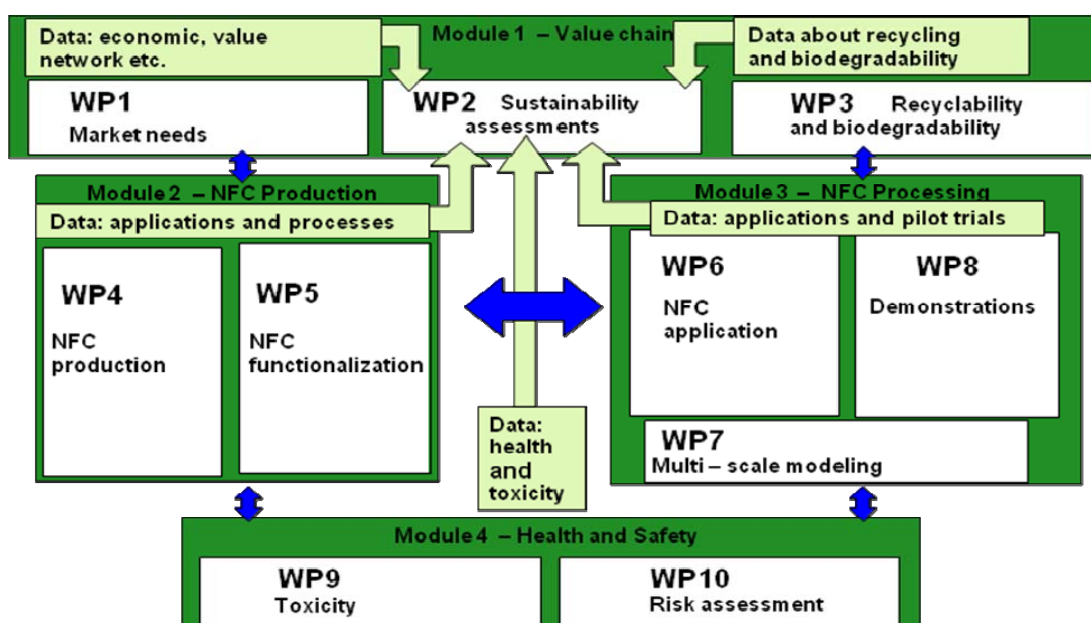


Figure. Data collection sources for sustainability assessments in the SUNPAP project

The SUNPAP project has public web pages <http://sunpap.vtt.fi>. The public reports and all scientific papers will be available there in the future.

The collaborative project with 22 partners will run until June 2012. The EU will cover nearly 70% of the project costs. Most of the project work will be carried out in Finland, Germany and France at research centres committed to the regeneration of forest industries (KCL/VTT, PTS and CTP). KCL's integration with VTT in the beginning of this year 2010 brought considerable benefits to the project through increased resources and expertise. The industrial partners – and future beneficiaries of project results in industrial scale – are Stora Enso, Ahlstrom, UPM-Kymmene, Felix Schoeller and J. Rettenmaier & Sohne. The SUNPAP project consortium consists altogether of 22 partners from 8 European countries, Finland, Germany, France, Italy, Sweden, Portugal, Austria and the UK, which are all EU-member states. The partners include 6 research organizations, 4 universities, 4 SME's and 8 large industrial companies.



The list of SUNPAP Project partners

Research organizations:

Technical Research Centre of Finland, VTT, Finland (Coordinator)
Papiertechnische Stiftung, PTS, Germany
Centre Technique du Papier, CTP, France
Stazione Sperimentale Carta, Cartoni e Paste per Carta, SSCCP, Italy
Grenoble INP Pagora, France
Finnish Institute of Occupational Health, Finland

Universities:

Universidade de Aveiro, Portugal
Karlstad University, Sweden
TUT Foundation, Finland
Aalto University Foundation, Finland

SME partners:

Cavitron vom Hagen & Funke GmbH, Germany
Hansa Industrie-Mixer GmbH & CO. KG, Germany
BioSafe - Special Laboratory Services Oy, Finland
NanoSight Ltd, U.K.

Industrial partners:

Colorobbia SPA, Italy
J. Zimmer Maschinenbau GmbH, Austria
Felix Schoeller jr Foto- und Spezialpapiere GmbH & Co. KG, Germany
Pöyry Management Consulting Oy, Finland
J. Rettenmaier GmbH, Germany
Stora Enso, Sweden
UPM-Kymmene, Finland
Ahlstrom Research and Services, France