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Research area: Product aims

Paper, paperboard and board / packaging papers and paperboard

Key words: Non wood forest products, Paper technology, Plastics technology, Active packaging, Biopolymers, Cartonboards, Life Cycle Assessment, Nano materials, Packaging

TITLE: New Generation of Functional Cellulose Fibre Based Packaging Materials for Sustainability, NEWGENPAK
Background/Problem area

The NewGenPak ITN is an interdisciplinary research training network of 8 European universities, 3 research institutes and 6 enterprises from 10 European countries (Coordinator: Chris Breen, Sheffield Hallam University, U.K.). It is funded under the Marie Curie Framework 7 programme. The network will deliver a joint multidisciplinary research training programme for ten Early Stage Researchers (ESRs) and two Experienced Researchers (ERs). The NewGenPak partnership will encourage and foster the growth of the researchers' skills in scientific expertise, technological knowledge and professional aptitude. The key vehicle in this strategy is a supervised personal, original research project in a critical aspect of sustainable packaging.

Objectives/Research results, general

The aims of the NewGenPak ITN are:

- to conduct top-level research and training and devise innovative solutions for specific EU needs in the area of sustainable packaging,
- to advance the state-of-the-art in wood cellulose based sustainable packaging in three specific areas (a) next generation packaging composites, (b) cellulose-fibre based active packaging and (c) environmental, economic and societal aspects of packaging production,
- to educate the next generation of researchers inside a broad European research training network which includes universities, research centres and industry, thereby accelerating the researchers' advancement in their chosen career,
- to improve the career prospects of ERs and ESRs through complementary training such as; writing and presentation skills; language, effective communication and collaboration; project management and finance; project/product cycles; entrepreneurship; IPR.

Objectives/Research results for PTS
“Meeting packaging requirements for effective product and consumer protection while minimizing environmental impact by using the capabilities of multi-layer curtain coating technologies in packaging production”

The ESR will specify the material properties required to meet the demands during life of the package; e.g. production, filling, shelf exposure, consumer usage and package recycling in cooperation with the NEWGENPAK partners and the producers of paper board. The technical focus will be on how close control of the multilayer curtain coating process, including layer composition and compatibility, curtain stability and drying parameters. Minimising energy costs and production losses and improving the recyclability of the renewable and biodegradable barrier materials produced using this technology are environmental objectives. Theoretical and modelling approaches will be transferred to bench scale and pilot scale conditions and process applications.

After gaining general knowledge in the demands on packaging material and on practical paper coating using curtain coating equipment in lab and pilot scale, the ESR has been concentrating on the simulation of barrier properties of selected proteins. Interactions with other components required by curtain coating are to be included in this simulation.

Application/Economic benefits

- Structuring high quality initial research training capacity throughout Europe
- Contribution of the training programme towards the policy objective of enhancing
- Develop future generations of entrepreneurial researchers
- Attracting young people to research careers and enhancing their career prospects
- Adding to the intersectoral employability of researchers,
- Impact on European research
 - strengthen Europe's global research position and retain high-quality-high-income jobs.
 - establish an active international and interdisciplinary network
 - establish knowledge, expertise and connections in sustainable packaging research
 - enhance the quality of life of Europeans and ensure the future welfare of European citizens by reducing carbon emissions and releasing energy

Period of time: 01.12.2011 – 30.11.2015

Remarks

The integrated research project NEWGENPAK (FP7-PEOPLE-2011-ITN), Project No.: 290098, is being funded by the European Commission in the funding scheme of Marie Curie Actions – Initial Training Networks (ITN) covering three subprojects. PTS tasks concentrate on WP4: Packaging, production; environmental, economical and societal impacts.

Partners and associate partners are: SHU (UK), KaU (SE), ZUT (PL), ITENE (ES), Chesapeake CSK (UK), Imerys (UK), Innovhub (IT), UNIBO (IT), INP (FR), PTS (DE), DTU (DK), Bumaga (NL), Stora Enso (SE), Colorbia (IT), FhG IVV (DE), STU (SK), MUAS (DE), ARS (FR)