



COST is supported by
the EU Framework Programme
Horizon 2020

ActInPak COST Action FP1405

Active and intelligent (fibre-based) packaging – innovation and market introduction

NEWSLETTER

Volume 4

EDITORIAL

Our Action focuses especially on bringing together research scientists and industry representatives to enable market implementation of active and intelligent packaging. The main focus in our first two years was to identify the barriers for this market implementation and to provide solutions and direct scientific research.

Year 1 was about getting to know each other and addressed state of the art and further research via networking and training. Year 2 focused around working together, and addressed the analysis of example products, understanding of R&D and market needs, dissemination and awareness creation.

During the meetings, different topics were raised both from scientific (more technical) and industrial (more practical) point of view, with the industrial representatives actively participated. This way, networking with and gaining knowledge from different disciplines/sectors/industries was enabled and proved the added value of the Action. Both meetings, as well as Training School, and STSMs in this sense were effectively utilised.

Some overview about our activities is shortly presented in Newsletter, more information is available at our [website](#) and [LinkedIn](#).

Sanne Tiekstra, Action Chair
Diana Gregor Svetec, Editor

SHORT TERM SCIENTIFIC MISSIONS

STSMs are very popular: within GP1 5 STSMs were undertaken, and in GP2 11 STSMs were hosted.

Reports and video post casts are available at our [website](#).

STUDENT CONTESTS

During our last meeting in November 2016 in Bled, Slovenia, the Student Contest was launched.

Within this contest, young students in Bachelor or Master Degree are invited to participate in one of the following topics:

- SC1 – “Demonstrator”: focusing on the production of a demonstrator in active and intelligent packaging (scale 1:1),
- SC2 – “Tech & eco”: dealing with technological and economic analyses of one type of active and intelligent packaging.

Deliverables for SC1: report, ppt presentation, video, demonstrator

Deliverables for SC2: report, ppt presentation

Deadline is 1st of June 2017.

**COST Action
FP1405
ActInPak**

Duration:
2015-2019

More information:
www.actinpak.eu
www.linkedin.com/groups/COST-FP1405-Actinpak-8254568/about

More information:
www.actinpak.eu/general-information-about-stsm

More information:
www.actinpak.eu/student-contests-scs

The two Student Contests (SC) are networking tools aimed at increasing collaborations between European students, researchers and companies in the field of active & intelligent packaging.

SCs are student activities fostering collaboration between student and partners, contributing to the scientific objectives of the Actions, allowing participant to learn new techniques, communicating on the field.

They are particularly intended for young students from a Participating COST country or International Partner.

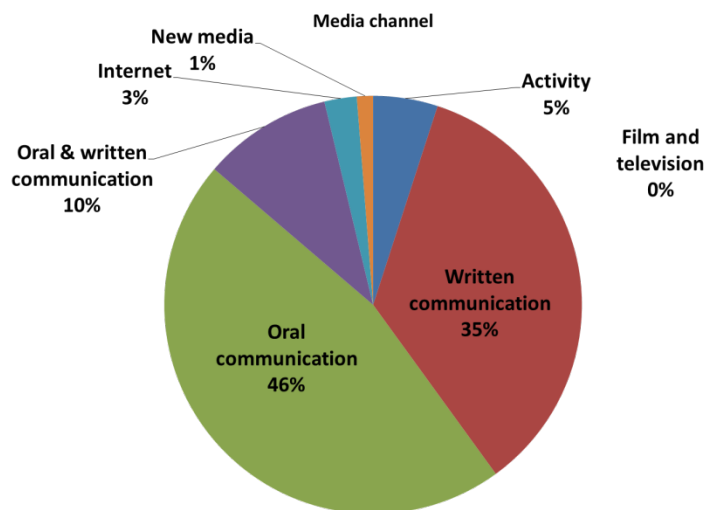
Each SC “winner group” will be invited in the next ActInPak conference to present their work. They could have networking actions during this conference and their CV will be distributed to all partners (more than 100 contacts in industry and university). Their work will be also on-line at ActInPak website.

More information can be found at our [website](#) in Flyer and Presentation.

More information:
www.actinpak.eu/wg/wg4

KNOWLEDGE TRANSFER AND DISSEMINATION (WG4)

Dissemination of generated knowledge through different media.



More information:
www.actinpak.eu/actinpak-events

PAST COST ACTION EVENTS

COST Action WGs meeting – April 4-5, 2016

COST Action WGs meeting entitled Status of current developments and challenges in active and intelligent packaging, took place at PTS in Munich, Germany. It was organised jointly with PTS' Innovative Packaging Symposium, where 11 COST Action members gave oral presentation and 7 had poster presentation. In parallel Working Groups meeting the state-of-the art in the field of active and intelligent packaging was discussed. Scientific/technological presentations from ActInPak members revealed novelties in A&I food packaging. In Plenary session, which was open for industrial attendees, food safety and food contact legislation, market and challenges in implementation were discussed.

Presentations are available at our [website](#).

COST Action MC + WGs meeting – November 21-23, 2016

Second MC/WGs meeting was held in Bled, Slovenia and was combined with the Papermakers Conference, where 6 COST Action members gave presentations. At WGs meeting participants worked in parallel Working Groups meetings, discussing

mostly the preparation of technical and scientific joint publications. The plenary WG's session hosted invited speaker, which presented Market introduction of A&I packaging by AIPIA members. ActInPak's Short Term Scientific Mission students presented work they have done at host institution. Topics presented at ActInPak conference were related to bioactive compounds in food packaging, bioactive packaging, renewable active packaging, electrospun coatings, printed electronics and substrates for printed electronics.

Presentation are available at our [website](#).

COST Action WG2 + WG3 meeting – February 28-March 1, 2016

A special workshop meeting for WG2 and WG3, focused on A&I packaging in the markets and sustainability issues, took place at ITENE, Valencia, Spain. The meeting started with the presentations entitled Consumer value for active packaging - results of Chill Guard study and Introduction to PTR Living Lab - home of cross-sensory concept testing. In WG2 workshop members of WG2 and WG3 worked in small groups to find out barriers and challenges related to successful market introduction of A&I packaging. WG3 workshop dealt with the LCA of demonstrator products: defining system boundaries, functional unit, inventory data, identifying and countering data gaps, impact assessment choice.

Presentation are available at our [website](#).

LCA/SUSTAINABILITY ISSUES, HEALTH AND SAFETY (WG3)

Life Cycle Assessment of Active and Intelligent Packaging

Sustainability benefits of active and intelligent packaging are numerous, but are difficult to quantify in a scientific and objective manner. In order to achieve this task – at least from just the environmental angle of sustainability – we can use Life Cycle Assessment (LCA). LCA is a methodology that allows us to assess environmental impacts of active and intelligent packaging, and more importantly compare those impact to traditional packaging solutions.

On the 1st of March 2017 members of Work Group 2 and 3 met in Valencia, to discuss and decide on crucial implications and assumptions of LCA for three active and intelligent demonstrator packaging products selected on previous meetings (ActInPak-Demonstrators).

Three main decisions were taken:

- LCA studies on demonstrator products will be targeted to brand owners, retailers and/or packers. Those value chain participants were identified to be essential for active and intelligent packaging widespread market introduction and commercialisation.
- The scope of active and intelligent packaging LCA will be very broad and inclusive. Most importantly, the scope will include the actual packed product and end-of-life scenarios.
- The functional units for all three demonstrator products vary slightly according to their actual function, but their common theme is the actual consumption of the final product by the final consumer.

Currently the participants of ActInPak are working on collecting the inventory data – that is – all the active and intelligent packaging value chain processes in the whole life cycle of the packaging and the product.

More information:

www.actinpak.eu/actinpak-events

More information:

www.actinpak.eu/wg/eg3

www.actinpak.eu/march-2017-wg2wg3-meeting-aip-markets-sustainability-issues-valencia-spain

More information:

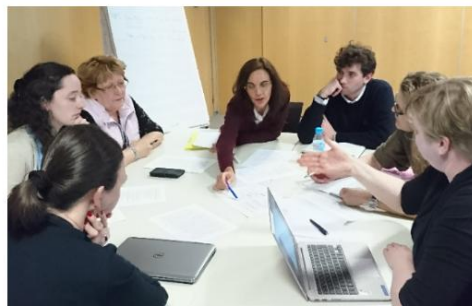
www.actinpak.eu/wg/wg2

www.actinpak.eu/march-2017-wg2wg3-meeting-aip-markets-sustainability-issues-valencia-spain

INDUSTRIALISATION/MARKET INTRODUCTION (WG2)

At a special workshop meeting with the topic "AIP in the markets & sustainability issues" together with WG2 leader Johanna Lahti and WG3 leader Grzegorz Ganczewski there were 27 participants. During the first day we had an introduction of ITENE and also tour in the facilities. Keynote speaker was Mrs Virpi Korhonen from Package Testing and Research Ltd (Finland). She gave us an interesting overview of Living lab concept and studying of consumer experiences. After that we worked in small groups to discuss about "barriers" relating to the following topics:

1. Legislation
2. Supply chain challenges, definition of value chain and parties involved
3. Market introduction
4. Non-technological aspects, consumer expectations.



More information:

www.actinpak.eu/training-schools

www.tut.fi/ActInPakSummerSchool

TRAINING SCHOOLS

Training Schools aim to facilitate capacity building on a topic relevant to the theme of the Action through the delivery of intensive training on a new or emerging subject. First Training School in our Action was about printing of functional applications. Upcoming Training School will bring together leading speakers from academia across Europe and industry to deliver an introduction to active and intelligent packaging to trainees. The summer school takes place at Tampere University of Technology in Tampere, Finland, and is organised by research group of Paper Converting and Packaging Technology using its comprehensively equipped laboratories. The program is available at our [website](#).

DISSEMINATION EVENTS

COST Action ActInPak was promoted at different conferences:

- » At NANOTEC2016 – International Conference on Nanotechnology Applications which took place on 26-27 September, 2016, Valencia, Spain, parallel COST sessions were organized. In COST ActInPak session 9 presentations were given by the COST Action members (www.nanotec2016.com).
- » Packaging section “Packaging with added value” with 6 presentations held by COST ActInPak members, was organized at 43rd International Annual Symposium DITP on 23-24 November, 2016, Bled, Slovenia.
More on: www.actinpak.eu/conferences.
- » COST Action ActInPak was promoted at the Networking event HighTech Printing Technology on 25th November, 2016, Antwerpen, Belgium. 3 COST Action members presented topics connected to intelligent packaging.
More on: www.actinpak.eu/conferences.

More information:

www.actinpak.eu/resources

UPCOMING EVENTS ACTINPAK

- » Training School on Active and intelligent packaging solutions will take place from 12th till 16th of June 2017 in Tampere, Finland.
- » COST Action ActInPak Working Groups Roadmapping workshop will take place on 7th of September 2017 in Budapest, Hungary.
- » From 7th till 9th of November 2017 ActInPak Meeting on Application and Communication of Active and Intelligent Packaging, including MC meeting and WGs workshop, will take place in Judean Hills, Israel.

UPCOMING EVENTS IN THE FIELD OF ACTINPAK

- » Smithers Pira and TAPPI’s Specialty Paper Europe conference – April 3-5, 2017 Cologne, Germany. This conference provides manufacturers and suppliers the rare opportunity to gather, exchange ideas, network, and search for business solutions. (www.specialtypaperconference.com/europe)
- » 2017 TAPPI European PLACE Conference – May 22-24, 2017 Basel, Switzerland. This conference is the premier technical event for the European Flexible Packaging and Converting industry and is held every two years. The theme for the 2017 event is "Innovation Crossing Borders: The Conference to Foster Inter-functional Ideas and Solutions". (<http://events.tappiplace.org/>)
- » 44th International Iarigai Conference – September 10-13, 2017 Fribourg, Switzerland. The conference encompasses a broad range of topics related to print and media research. Key focus areas for this conference include: Print for packaging, Printed functionality, Printing processes and products - industrial processes and product development – sustainability, Substrates for printing, 2Dplus printing (2.5D / 3D / 4D), Printing in life sciences – bio printing, Coating for/by printing – selective and structured coating. (<http://iarigai-fribourg.com/>)
- » 10th World Congress of Chemical Engineering – October 1-5, 2017 Barcelona, Spain. During this congress, the Joint Event “Nanocelluloses: Engineered Applications and Sustainability” takes place. This Joint Event will be divided in three sections: Fundamentals, Applications, Sustainability.
(<http://wcce10.org//index.php/abstract-submission-nanocelluloses/>)

- » Printing for Functional applications – Summer School – July 10-14, 2017 Swansea, United Kingdom. This course brings together leading speakers from academia across Europe and Industry to deliver an introduction to printable electronics. The summer school is organised by Welsh Centre for Printing and Coating (WCPC) in association with icmPrint Limited, using its new comprehensively equipped laboratories. The course covers: Design and applications, All major printing processes (flexo, screen, gravure, pad, offset and inkjet), Inks, Substrates, Curing technology, Characterisation technologies, Practical sessions. More information and registration details: <http://wcpcswansea.com/> or <http://www.icmprint.com/>.

PAST EVENTS IN THE FIELD OF ACTINPAK

Strengthen the trans-European network - Participation of ActInPak members in Cost Action FP1205 Training School

The members of the Cost Action FP1405, Ms. Adriane Cherpinski from the Spanish National Research Council, Institute of Agrochemistry and Food Technology (CSIC-IATA) and Mr. Christian Kossel from the Papiertechnische Stiftung, Germany took the opportunity to participate in the fifth training school within Cost Action FP1205 – Innovative applications of regenerated wood cellulose fibers.

The topic was characterization of nanocellulose and took place in Potsdam, Germany, 17-19 January 2017.

The aim of the training school was to generate knowledge and practice on characterization of materials based on nanocellulose. The participants learned more about different characterization methods, the application possibilities, advantages/disadvantages, and detection limit or sample preparation of the methods.

The first day offered lectures about different possibilities for material characterization of small particles. In detail the participants learned about the possibilities of the X-ray examination for characterization of polymers, the use of electron microscopy TEM/SEM, the characterization of cellulose and nanocellulose via NMR and permeation measurements as well as the characterization of nanocellulose with porosimetry and volumetric gas adsorption.

The topic of the second day was a theoretical introduction and after that the possibility of practical working in the lab with some selected methods. The training was carried out in small groups.

In the third day, which had been the last one, the participants had the possibility to present their research work. Ms. Adriane Cherpinski and Mr. Christian Kossel presented results of their joint research work dealing with the topic: Application of electro-hydrodynamic processing to coat paper and board – Use of nanocellulose as the coating filler for high performance papermaking products.

This joint research is based on a Short Term Scientific Mission of Mr. Christian Kossel between PTS, Germany and the CSIC-IATA institute, Spain.