



COST FP1405 ActInPak

Introduction to the network

- Sanne Tiekstra, Chair

Bled, 23 November 2016

COST FP1405

ACTIVE AND INTELLIGENT FIBRE-BASED PACKAGING – INNOVATION AND MARKET INTRODUCTION



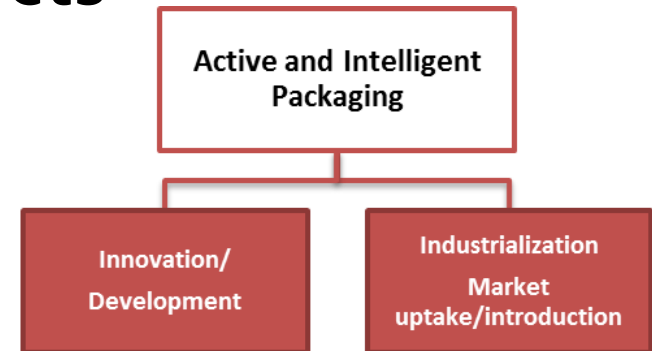
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ACTINPAK IS:

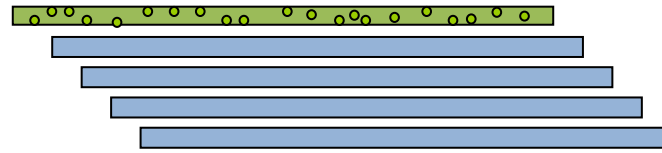


A pan European network of leading experts of **over 200 institutes, universities, companies** from **40 countries** with **one goal**: to **define innovative solutions** and **identify opportunities and obstacles** in market introduction for active and intelligent packaging in the area of fibre-based products

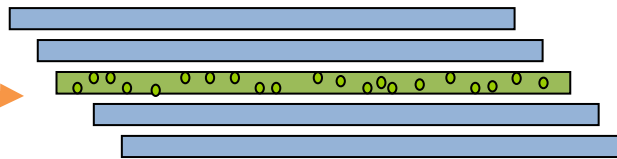
March 2015 – April 2019



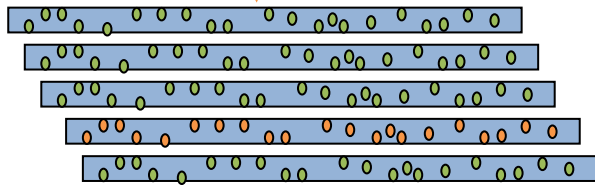
WE HAVE A DREAM...



Separate active/intelligent top layer by lamination, coating, sizepress, or printing



Separate active/intelligent layer(s) by lamination



Active/intelligent components added to pulp, so incorporated in structure

> 20 YEARS OF R&D...

**Isapack**
Intelligent | Sustainable | Active

NewGenPak

TOXDTECT

**PLA4food**

SusFoFlex



BIOACTIVELAYER

ROPAS

**BioBoard**

**acticospack**

FLHEF

**AIP**
Competence Platform

**SmartFlowerPack**

FRESHFILM

**ECOBIOCAP**

**adcell pack**

UCCIPACK

**hortibiQpack**

**nanoBarrier**

**S VARNISH**

**Easy Fruit**

**SUSTAIN PACK**

**nafispack**

...IN ACTIVE PACKAGING

Manufacturer	Country
Mitsubishi Gas Chemical Company	Japan
Toppan Printing Co.	Japan
Keplon Co.	Japan
Oji Kako Co.	Japan
Powdertec	Japan
Ueno Seiyaku Co.	Japan
Dai Nippon	Japan
Bioka Ltd	Finland
Standa Atco	France
Multisorb Technologies Inc.	USA
Johnson Matthey Plc	UK

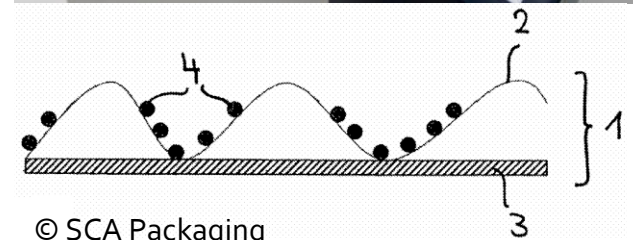
	Format	Tradename	Manufacturer	Country
Oxygen scavenger	Film	Multi layer	Bioka®	Finland
		Laminate	OS2000®	Japan
		Multilayer	ZERO2™	Japan
	Concentrate		Shelfplus	Japan
		Multilayer	Amosorb®	USA
Antimicrobial	Closure		Oxyguard™	Japan
			Celox™	USA
	Liner		Daraforms 649C	USA
		Multilayer	Zeomic®	Japan
	Concentrate		Agion	Japan
			MicroFree™	USA
	Extract		Microban®	USA
			Citrex™	Brazil
	Film		Nisaplin®	USA
			MicroGard™	USA

Table 1-I.4. Current active packaging commercialized

packaging material.

Table 7.2 Examples of Commercial Antimicrobial Packaging Products and Manufacturers				Function
Trade Name	Active Compounds	Manufacturer	Refs.	
Plattech	Silver oxide	Daikoku Kasei Co. (Japan)	Brody et al. (2001)	
Silv Film	Silver oxide	Nimiko Co. (Japan)	Brody et al. (2001)	
Okamoto Super Wrap	Silver oxide	Okamoto Industries, Inc. (Japan)	Brody et al. (2001)	
Apacider	Silver zeolite	Sangi Co. (Japan)	Brody et al. (2001)	
Zeomic	Silver zeolite	Shinane New Ceramics Co. (Japan)	Brody et al. (2001)	
Bactekiller	Silver zeolite	Kanebo Co. (Japan)	Brody et al. (2001)	
Cleanaid	Silver zeolite	Gyunghyang Ind. Co. (Korea)	Brody et al. (2001)	
AgION	Silver	AgION Technologies LLC (USA)	Cho et al. (2009)	
MicroFree	Silver, copper oxide, zinc silicate	DuPont (USA)	Suppakul et al. (2003a), www.agion-tech.com	
Novaron	Silver	Milliken Co. (USA)	Vermeiren et al. (2002), Brody et al. (2001)	
Surfactine	Silver halide	Surfactine Development Co. (USA)	Vermeiren et al. (2002)	
Ionpure	Silver/glass	Ishizuka Glass Co. (Japan)	Vermeiren et al. (2002)	
Microban	Triclosan and others	Microban Products Co. (USA)	Vermeiren et al. (2002)	
Sanitized, Actigard, Saniprot, Ultra-Fresh	Triclosan and others	Sanitized AG/Clariant (Switzerland)	Brody et al. (2001)	
WasaCuro	Triclosan and others	Thomson Research Assoc. (Canada)	Vermeiren et al. (2002), Suppakul et al. (2003a)	
Wasa Power	Allyl isothiocyanate	Green Cross Co. (Japan)	Vermeiren et al. (2002)	
MicroGarde	Allyl isothiocyanate	Sekisui Plastic Co. (Japan)	Brody et al. (2001)	
Take Guard	Clove and others	Rhone-Poulenc (USA)	Cho et al. (2009)	
Acticap	Bamboo extract	Takeex Co. (Japan)	Brody et al. (2001)	
Ageless SE	Ethanol	Freund Industrial Co. (Japan)	Brody et al. (2001)	
BioCleanact	Silver	Mitsubishi Gas Chem. (Japan)	Smith et al. (1987)	
Microatmosphere	Antibiotics	Micro Science Tech Co. (Korea)	Cho et al. (2009)	
Grape Guard	Chlorine dioxide	Southwest Research Institute (USA), Bernard Technologies Inc. (USA)	Han and Moon (2002)	
Uvasy	Sulfur dioxide	Quimica Oskú S.A. (Chile)	Brody et al. (2001)	
	Sulfur dioxide	Graptetec (S. Africa)	Scully and Horsham (2007)	

...IN ACTIVE PACKAGING



... AND PRINTED INTELLIGENCE



HAS LED TO 1 CONSUMER PRODUCT?*



Testimonials

"The Miracle Paper"
THE WASHINGTON POST

"Ingenious"
THE NEW YORK TIMES

"The best *non-diet* diet tip we've ever
heard"

OPRAH MAGAZINE

"We tried it, & it works!"
PREVENTION MAGAZINE

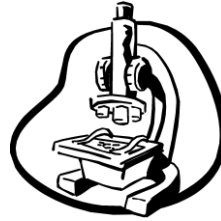


WHY THIS ACTION?



1. Most developments are plastic based.
Development of integration into paper based products.
2. So many examples, but so little evidence of successful (B2C) market introduction in Europe.
Why?

IMPORTANCE OF THIS ACTION



Money

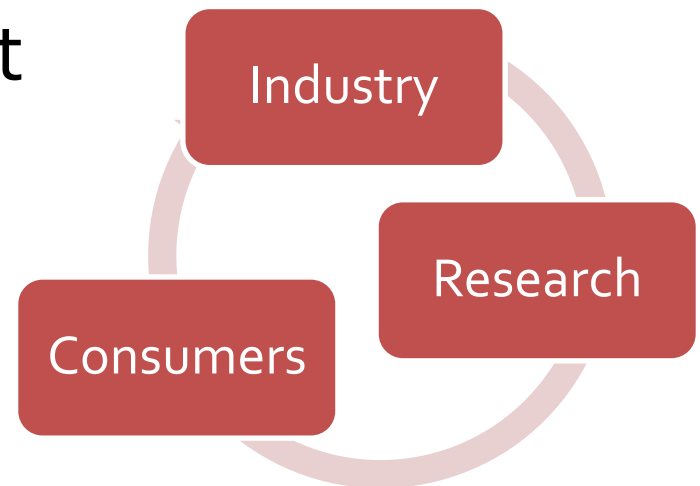


Knowledge



OUR ACTIVITIES

The main objective of the Action is to develop a **knowledge-based network** on sustainable, active and intelligent fibre-based packaging in order to **overcome current technological, industrial, and social limitations** that hinder the wide deployment of existing and newly developed solutions in market applications.



IMPLEMENTATION OF KNOWLEDGE

uncertainty

clearness/focus



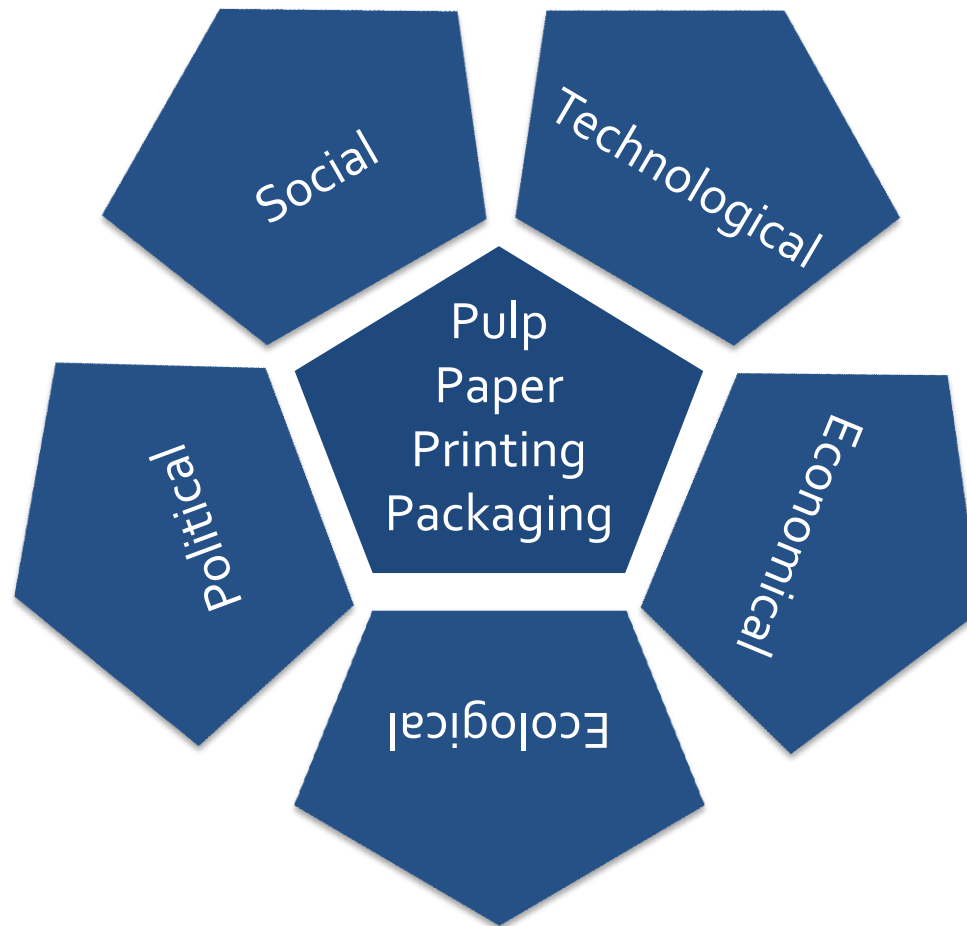
investigate &
understand

design (business model)
concepts

implement
(business model)

SUCCESSFUL INDUSTRIAL INCORPORATION

depends on several factors:



SECONDARY OBJECTIVES

- **Direct future innovations** and **contribute to existing development efforts** into scientific/technical research into fibrebased materials, new additives and techniques for active and intelligent functions;
- **Identify market demands**, possibilities and **any obstacles to market introduction** of active and intelligent fibre-based packaging;
- **Identify the technical limits and opportunities** for development of active and intelligent fibre-based packaging;
- Identify market demands and **supply chain challenges** to ensure easy introduction of smart packaging;
- **Identify sustainability, health and safety issues**;
- **Disseminate knowledge** to industry and society;



CORE GROUP



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Sanne Tiekstra
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STSM Coordinator
Marco Giacinti
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AT



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PARTICIPANTS

>200 participants from 33 EU and 7 international partner countries



INDUSTRY VERSUS SCIENCE

Action aims at active involvement of **complete value and supply chain**

- Currently: 47 companies from 16 different countries, ranging from large to small



WOULD LIKE TO PARTICIPATE?



Active participation of all partners is necessary to create a successful achievement of goals.

Industrial partners are key to the network to be able to identify the issues in market uptake.

Join us via our website:

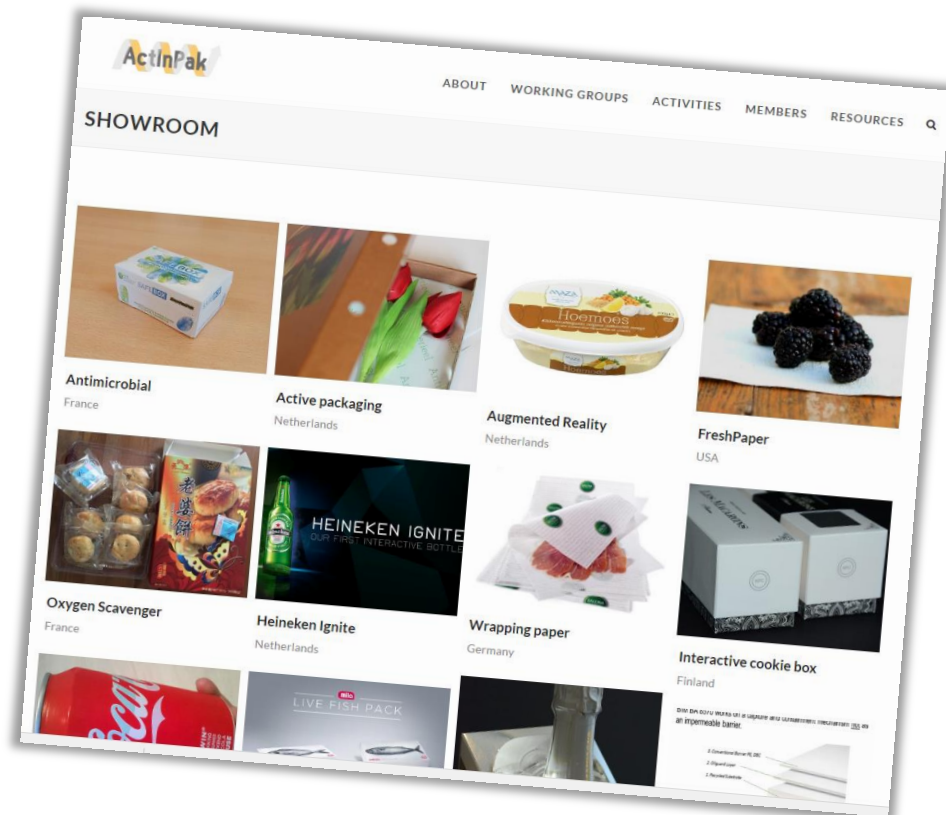
<http://www.actinpak.eu/members/become-a-member/>

POSSIBILITY TO SHOW YOUR PRODUCTS

Virtual showroom to show the possibilities in R&D as well as commercial products.

Publication:

- www.actinpak.eu,
- separate publication (due 2017)





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Virtual showroom

- some examples

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ANTIMICROBIAL PAPER



R&D
On the Market



What: Experimental antimicrobial paper with plant extract of tutsan

Where: Bulgaria, Sofia, UCTM –Sofia, Dept. Pulp, Paper and Printing Arts

When: September 2016

More info: Veska Lasheva, veska_lasheva@anv.bg

INTELLIGENT CHAMPAGNE BOX



R&D / Demo

On the Market



What: Demonstration of luxurious and functional features in intelligent packaging for high end products like champagne bottles. The package (made of polymer coated strong fiber based board) works as water tight cooler when opened and includes integrated LEDs illuminating the ice cooling the champagne bottle, as well as an NFC tag to launch mobile application for interaction with consumers.

Where: Stora Enso, Finland

When: 2016

More info: Simo Siitonen, Stora Enso

SELF-OPENING PACKAGE



R&D / Demo
On the Market

What: The Sustainable Expanding Bowl demonstrates the possibilities of a new mechano-active cellulose-based material. The initially compact package grows as hot water is added, and finally opens ready for the meal. The paperboard contains active properties that respond to heat and moisture.

Where: Innventia & Tomorrow Machine, Sweden

When: 2015-2016

More info:

<http://www.innventia.com/en/Our-Expertise/New-materials/Active-materials/>



AUGMENTED REALITY



R&D

On the Market



What: Augmented reality (by company Layar) in humus packaging Maza

Where: Supermarkets in the Netherlands

When: 2016 (since 2013)

INTERACTIVE FRESH FISH PACKAGING



R&D

On the Market



What: Fresh fish packaging that rattles to mimic the movement of recently caught fish, in order to show the freshness of the product.

Where: Polish grocery brand Mila

When: 2016

More info: blog.drupa.com/fish-packaging/

ETHYLENE ABSORBERS



R&D
On the Market



What: Sachets with ethylene absorbers to extend the shelf life of fruits, vegetables, flowers

Where: Poland, found on Polish Exhibition/Fairs Taropak 2016

When: 2016, available on the market

More info: www.pomona.pl

THERMOSENSITIVE FLAKE



R&D

On the Market

What: A special glass bottle with a thermosensitive flake, located on the side of the label that acts as an indicator of the proper cool-down. Snowflake changes its colour to blue when Nicolaus Extra fine Vodka is cooled properly.

Where: Bought in TESCO, Zvolen, Slovakia

When: 2016 (since 2011)



POSSIBILITY TO SHOW YOUR PRODUCTS



Want to add your product / development to our virtual showroom?

Send pictures with some info to:

s.tiekstra@bumaga.nl



CONTACT DETAILS:

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