



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



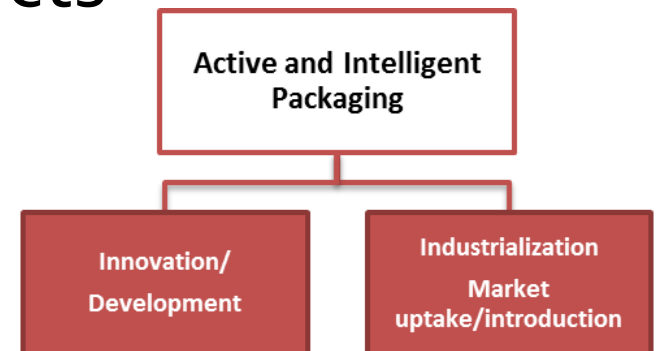
COST is supported by
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Horizon 2020

ACTINPAK IS:

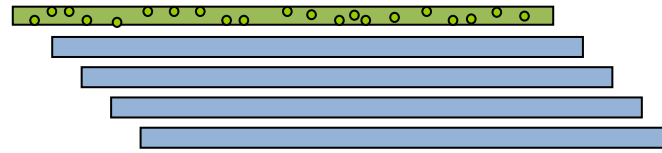


A pan European network of leading experts of **over 200 institutes, universities, companies** from **40 countries** with **one goal**: to **define innovative solutions** and **identify opportunities and obstacles** in market introduction for active and intelligent packaging in the area of fibre-based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

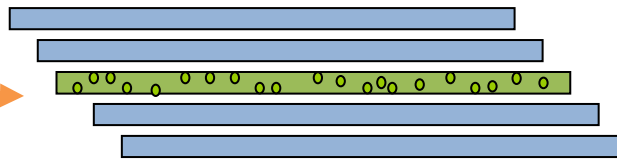
March 2015 – April 2019



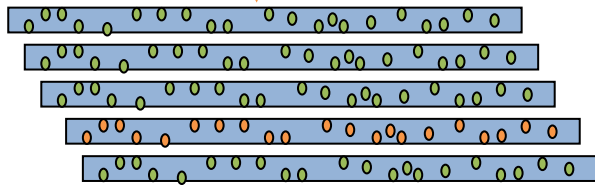
WE HAVE A DREAM...



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...



NewGenPak

TOXDTECT



SusFoFlex



BIOACTIVELAYER



acticospack

FLHEF



FRESHFILM

ECOBIOCAP



hortibiQpack



...IN ACTIVE PACKAGING

Manufacturer	Country	Function
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®	Sealed Air Corporation	
		Multilayer	ZERO2™	CSIRO and VisyPak	
	Concentrate	Multilayer	Shelfplus	Ciba Specialty chemicals	Switzerland
			Amosorb®	Amoco Chemical	
Closure Liner	Multilayer	Oxyguard™	Toyo Seikan Kaisha Ltd.	Japan	
Antimicrobial	Concentrate	Multilayer	Celox™	Grace Darex Packaging Technologies	
			Daraforms 649C	Grace Darex Packaging Technologies	
	Concentrate	Multilayer	Zeomic®	Sinanen Zeomic Co. Ltd.	
			Agion	Agion Technologies	
	Extract	Film	MicroFree™	E. I. du Pont de Nemours and Company	
			Microban®	Microban Products	
Film	Extract	Citrex™	Quimica Natural Brasileira		
		Nisaplin®	Integrated Ingredients		
Film	Extract	MicroGard™	Rhone-Poulenc		
		Platech	Daikoku Kasei Co.		

Table 1-I.4. Current active packaging commercialized

packaging material.

Trade Name	Active Compounds	Manufacturer	Refs.
Plattech	Silver oxide	Daikoku Kasei Co. (Japan)	Brody et al. (2001)
Silvi 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	Sangli 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	Gyunggyang 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 zirconium phosphate	Surfactine Development Co. (USA)	Vermeiren et al. (2002)
Ionpure	Silver halide	Ishizuka Glass Co. (Japan)	Vermeiren et al. (2002)
Microban	Silver/glass	Microban Products Co. (USA)	Vermeiren et al. (2002)
Sanitized, Actigard, Saniprot, Ultra-Fresh	Triclosan	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	Triclosan and others	Green Cross Co. (Japan)	Vermeiren et al. (2002)
MicroGarde	Alyl isothiocyanate	Sekisui Plastic Co. (Japan)	Brody et al. (2001)
Take Guard	Alyl isothiocyanate	Rhone-Poulenc (USA)	Cho et al. (2009)
Acticap	Clove and others	Takex Co. (Japan)	Brody et al. (2001)
Ageless SE	Bamboo extract	Freund Industrial Co. (Japan)	Brody et al. (2001)
BioCleanact	Ethanol	Mitsubishi Gas Chem. (Japan)	Smith et al. (1987)
Microatmosphere	Silver	Micro Science Tech Co. (Korea)	Cho et al. (2009)
Grape Guard	Antibiotics	Southwest Research Institute (USA), Bernard Technologies Inc. (USA)	Han and Moon (2002)
Uvassy	Chlorine dioxide	Quimica Osku S.A. (Chile)	Brody et al. (2001)
	Sulfur dioxide	Grapetek (S. Africa)	Scully and Horsham (2007), Scully and Horsham (2007)

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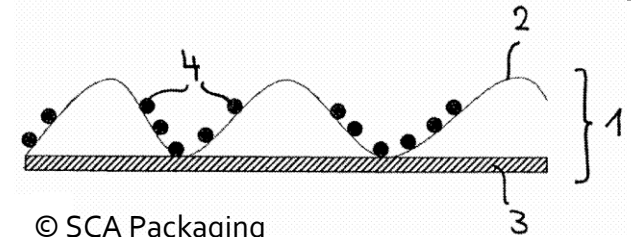
rbate

ion

onium propionate

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...IN ACTIVE PACKAGING



© SCA Packaging

... AND PRINTED INTELLIGENCE



If the product is properly stored,
TRACEO® is transparent,
the product is fresh.

If the product is badly stored,
TRACEO® is pink,
the product is no longer edible.

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

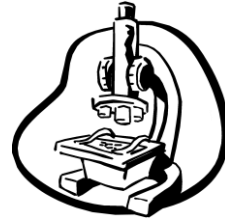


WHY THIS ACTION?



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

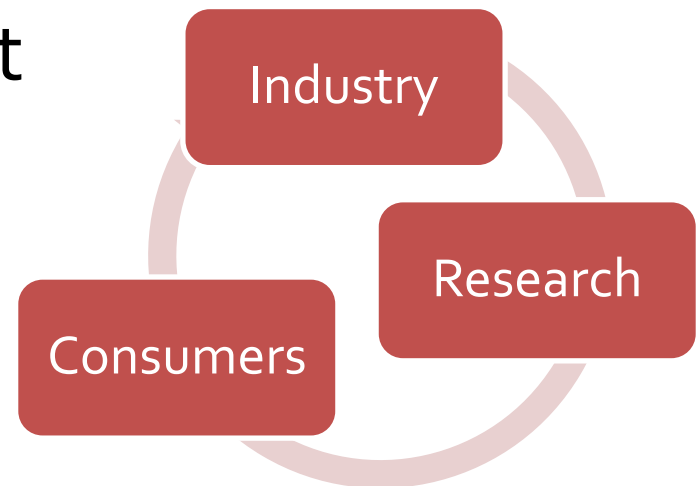


Knowledge



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



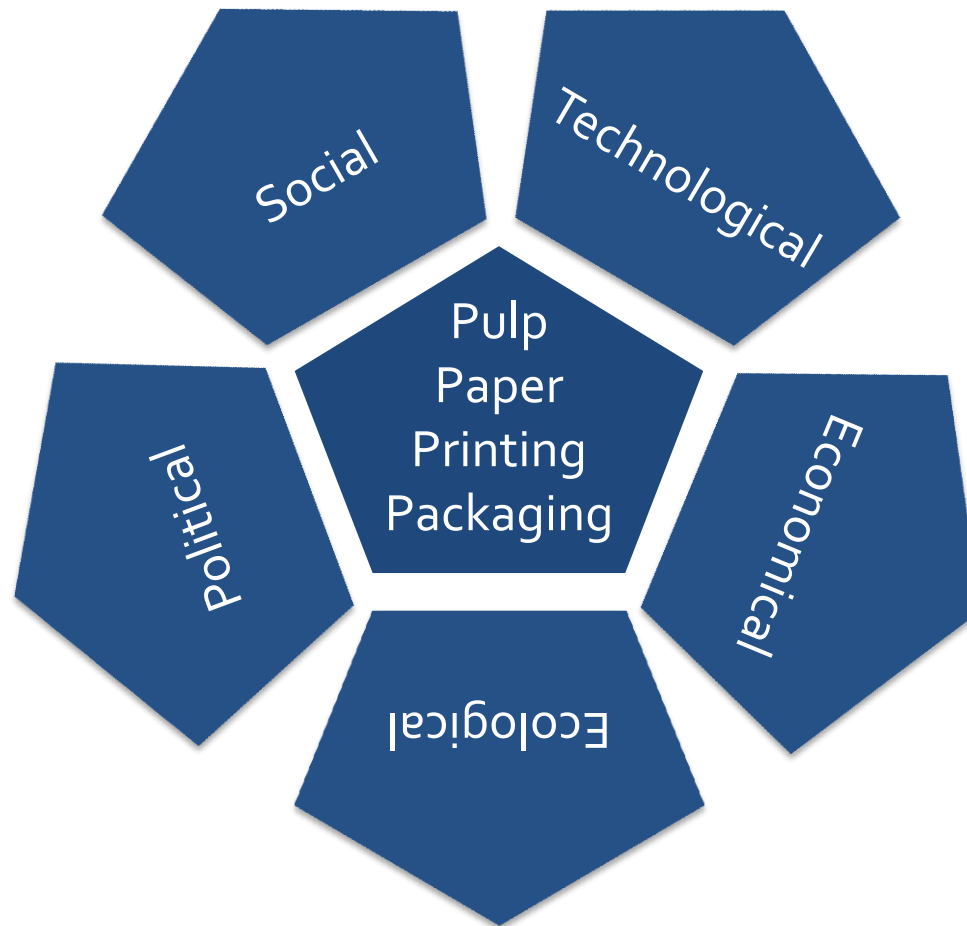
**investigate &
understand**

**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
NL



Vice-Chair
Julien Bras
FR



STSM Coordinator
Marco Giacinti
IT



WG1
Selçuk Yildirim
CH



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WG3
Greg Ganczewski
PL



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Deja Muck
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KTC/IIC
Johannes Bergmair &
Victoria Heinrich
AT



Editorial Board
Diana Gregor-Svetec
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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:

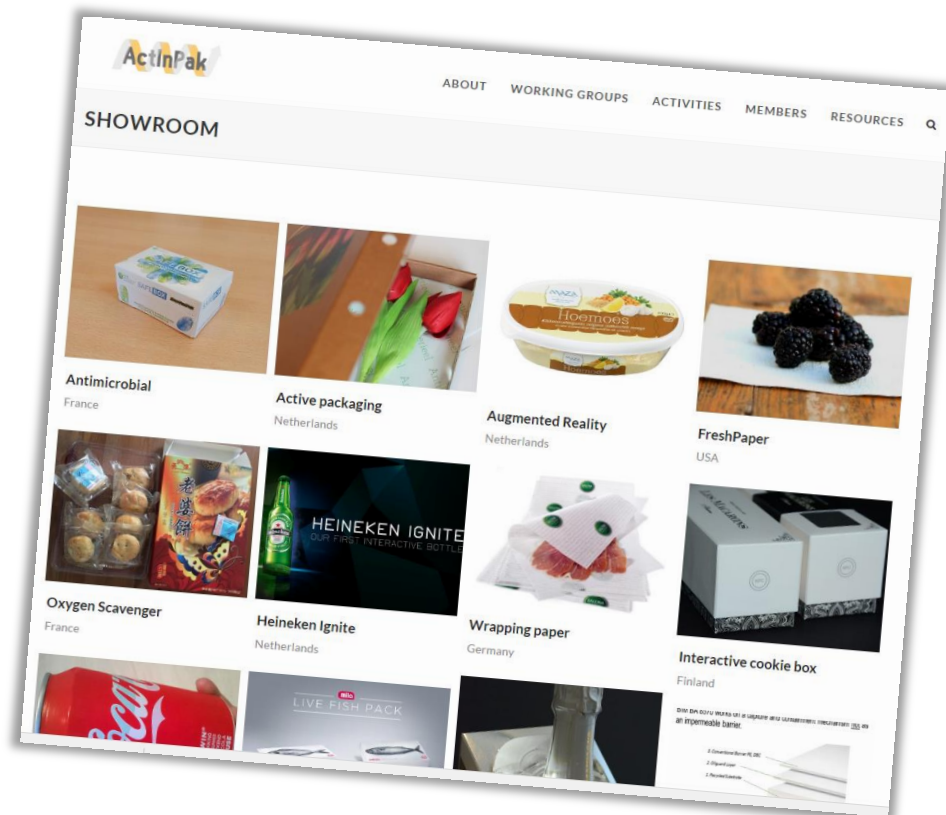
<http://www.actinpak.eu/members/become-a-member/>

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

ActInPak

CONTACT DETAILS:

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+31 6 1358 8739

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