



Passion for packaging

NEW PERFORMANCES OF FOOD PACKAGING:

ILIP INNOVATION

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INTERNATIONAL CONFERENCE

NanotechITALY2015

Cross-Cutting KETs for Responsible Innovation

BOLOGNA, 25-27 NOVEMBER 2015

NEW PERFORMANCES OF FOOD PACKAGING: ILIP INNOVATION

AGENDA

- I.L.P.A group
- New packaging performances : the drivers of change
- Innovation : technological progress of active packaging
- Conclusions

“Serving and preserving freshness is what we do best”

With over 50 years of experience, we are one of the leading European producers of high quality thermoformed rigid plastic food packaging.

Our consistent strive for the best in terms of quality, innovation, service and sustainable answers are the main drivers for all our business activities.



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I.L.P.A. S.p.A. – At a Glance

Foundation	1962
Employees	> 550
Turnover 2012	195 M€ (+10%)
Turnover 2013	200 M € (+2,5%)
Turnover 2014	202 M € (+1,0%)
Factories	3 (2xBologna, 1xFerrara)
Divisions	2 (ILIP e MP3)
Controlled companies	1 (AMP RECYCLING SRL – 100%)
Market	Retail chains, food processing industry, foodservice companies, caterers, horticultural packaging, automotive industry, plastic converters
Export	> 55 Countries (5 CONTINENTS)
B2B Customers	> 4.000



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I.L.P.A. S.p.A. – At a Glance



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ILIP DIVISION

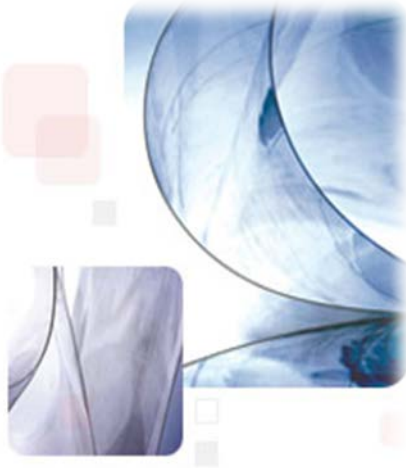
Fresh Produce Packaging,
Foodservice Packaging,
Fresh Food Packaging



I.L.P.A. S.p.A. – At a Glance



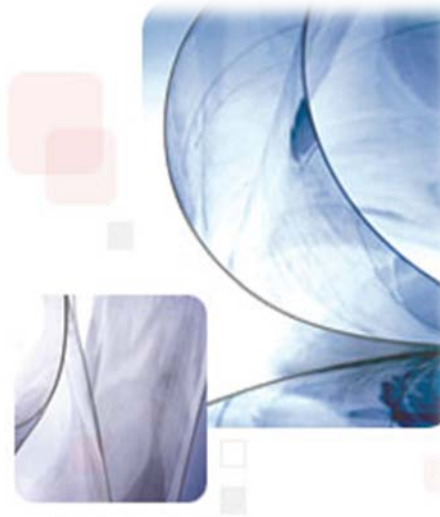
MP3 DIVISION **Semi-finished products**
Thermoformable and FF&S reels,
Cut Sheets



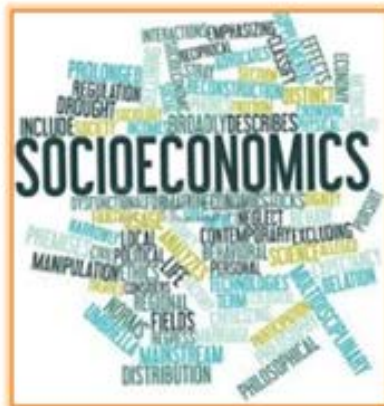
I.L.P.A. S.p.A. – At a Glance



AMP Recycling **PCW PET Recycling**
r- PET films extrusion
Horticultural packaging



The drivers that “define” the demand of: “New Packaging Performances”



**Socio economics
factors**



**The Global
dimensions of
consumption**



**Sustainability and
environmental
consciousness**

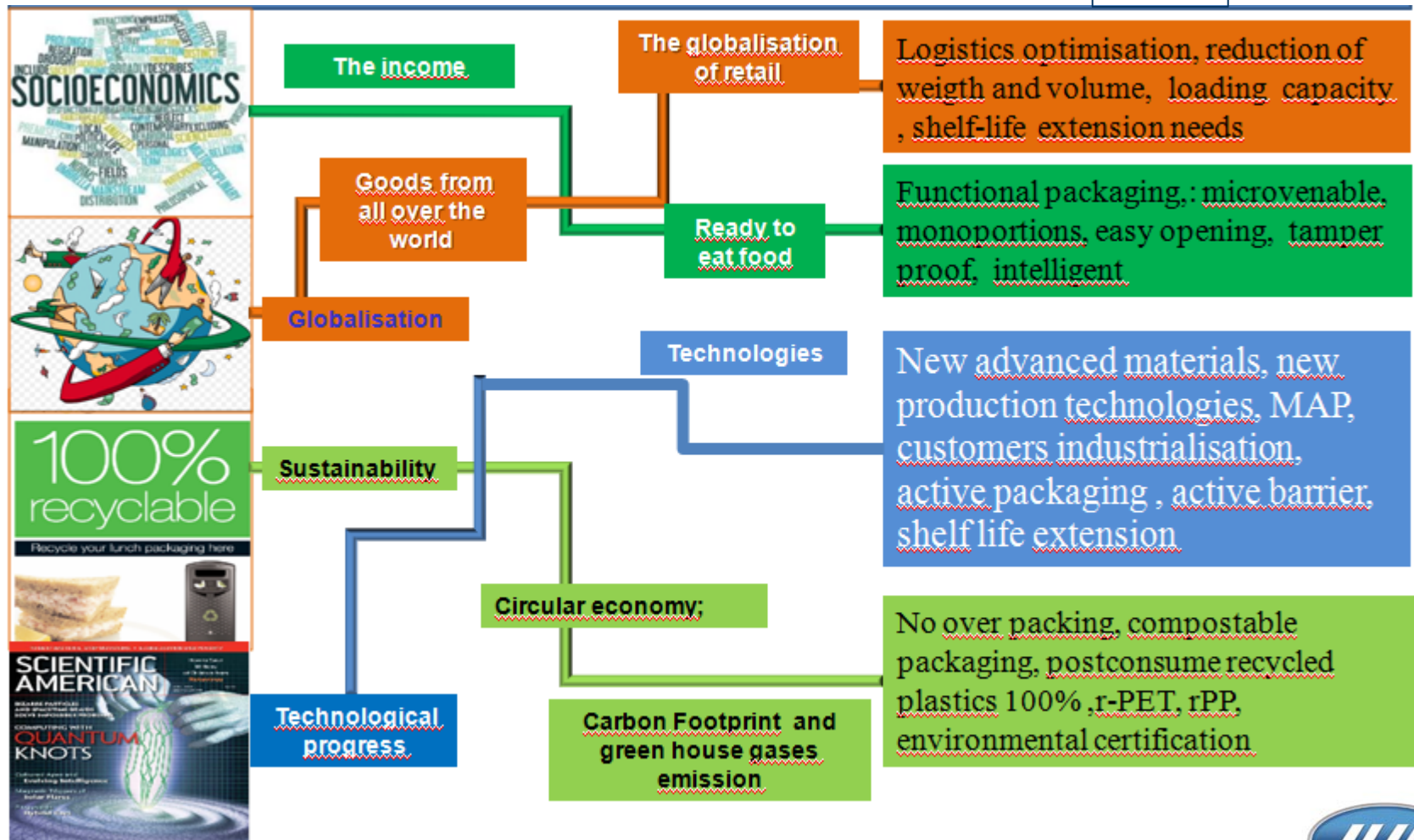


**The technological
progress**

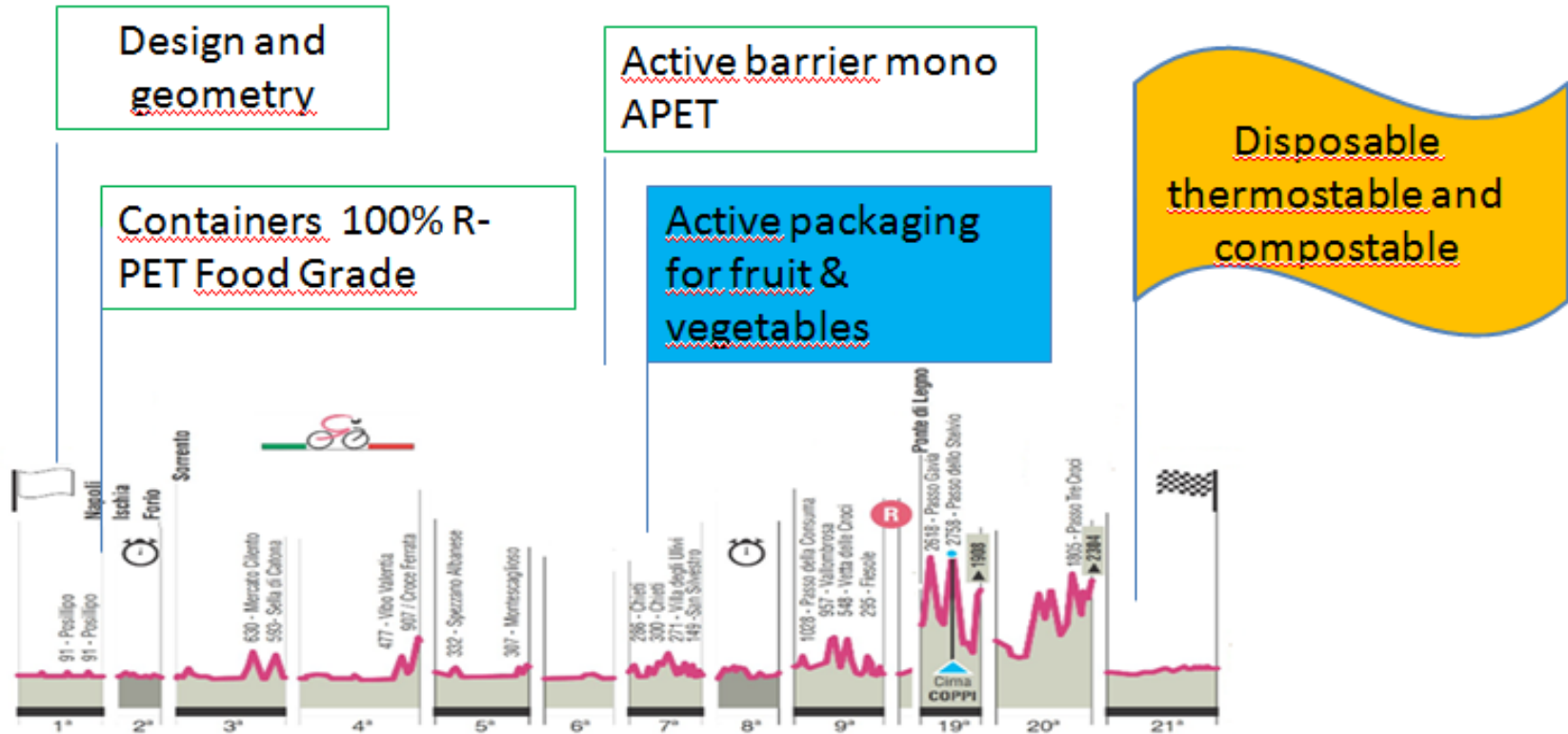


The drivers that “define” the demand of: “New Packaging Performances”

Plus



I.L.P.A Group – Innovation steps



Technological progress: Active packaging

Active Packaging definition: packaging in which some constituents have been deliberately included in the polymer matrix in order to release substances that enhance the performance of the packaging system and improve the shelf-life of food

ILIP developmental activity ongoing

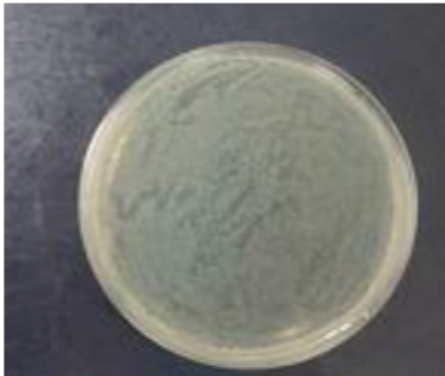
- Packaging with **antimicrobials**
- packaging that absorbs /degrades ethylene (**scavenging system**) thanks to substances included in the polymeric matrix : not migrating(catalytic action)
- Mineral Substances included in the polymer not migrating (**bioceramics**)
- Substances included in the polymer that will be released in controlled way from the packaging to the surface of food (**functionalized clay**)



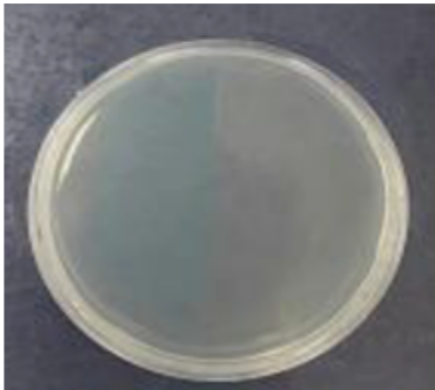
Technological progress: Active packaging

1. Antimicrobial

Blank sheet (24 h)



Active Bioceramic (24h)



Ceramic Filler /catalytic antimicrobial (Hydroxy Apatite, Zeolite, and ions Ag, Zn) introduced in the polymer for application of surface sanitification



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TEST METHOD USED : JIS Z 2801-2000 Film Attached Method

TEST BACTERIA : *Escherichia Coli* ATCC No. 25922

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TEST RESULTS

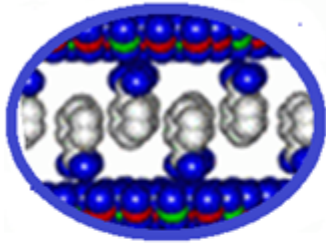
Sample kinds	Initial	After 24hrs	(unit : CFU/mL)
			Antibacterial Efficacy (%)
① Blank	6.8×10^2	5.4×10^4	-
② 5%		<10	99.9%
③ 10%		<10	99.9%



Technological progress: Active packaging

2. Shelf-life extension of fresh produce

“Active” trays in PP for fruit and vegetables



Filler

-Inorganic solid (filler) dispersed in a organic lamellar structure (clay) to obtain hybrid polymers (organic-inorganic) capable to have an active function, releasing substances with antimicrobial, antioxidant, ethylene scavenger function

Experimentation:



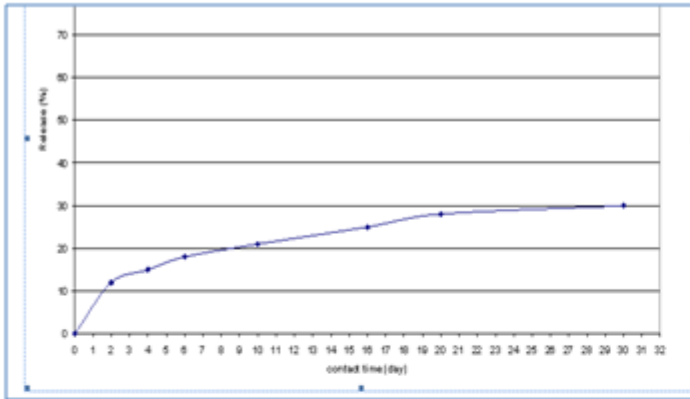
-Filler introduced in one layer of the polymer of PP trays for fruit and vegetables packaging

-Filler used by coating an absorbent paper PAD



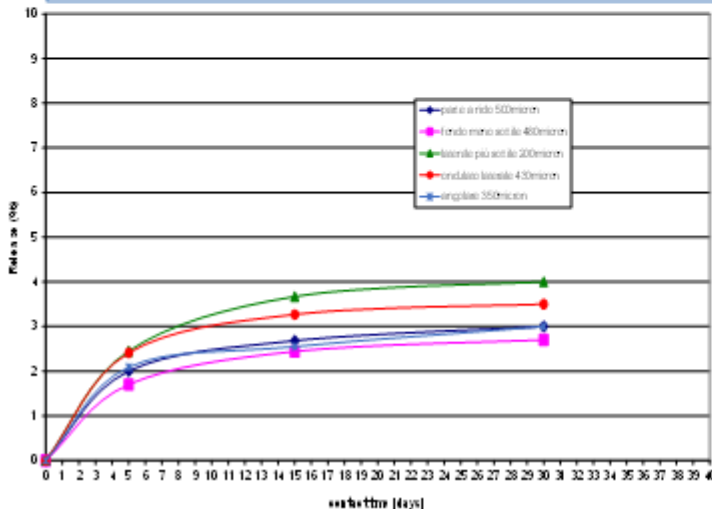
Technological progress: Active packaging

2. Shelf-life extension of fresh produce



Critical factors of the use of filler inside the polymer:

- Dimensions of the particles of the filler
- Thickness of the layers
- Process conditions (filler degradation)
- Type of polymers



The effectiveness of the filler as antimicrobial and antioxydant depends from the release of the active substance:

- in term of quantity x unit of pack surface
- migration speed of active substance from polymer to the surface of fruits
- Presence of humidity /water
- Type of microorganism



Technological progress: Active packaging

3. Shelf-life extension of table grape

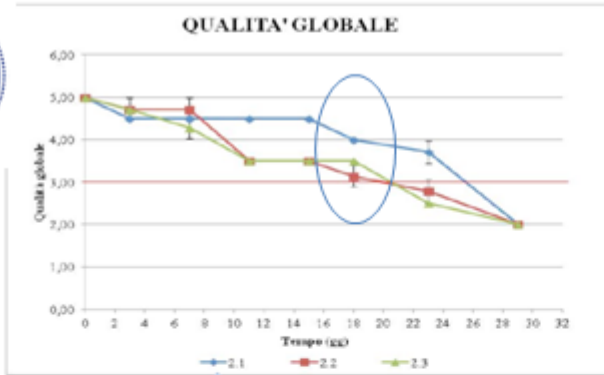


Figura 6 Evoluzione della qualità globale dei campioni di uva confezionati nei diversi sistemi

At 18-22 gg the quality is in favor of packaging with the active filler (2.1)

The permeability conditions (O₂-CO₂) and MVTR must be adapted for having the maximum benefits from the active substances



Technological progress: Active pad

4. Shelf-life extension of strawberry



-In general the trays with the active Pad have a lower extent of decay and wilting vs the reference

-The effectiveness is optimal in presence of water in the contact surface of the fruit or of the active pad



-The effectiveness is strictly dependent from the packaging solution used:

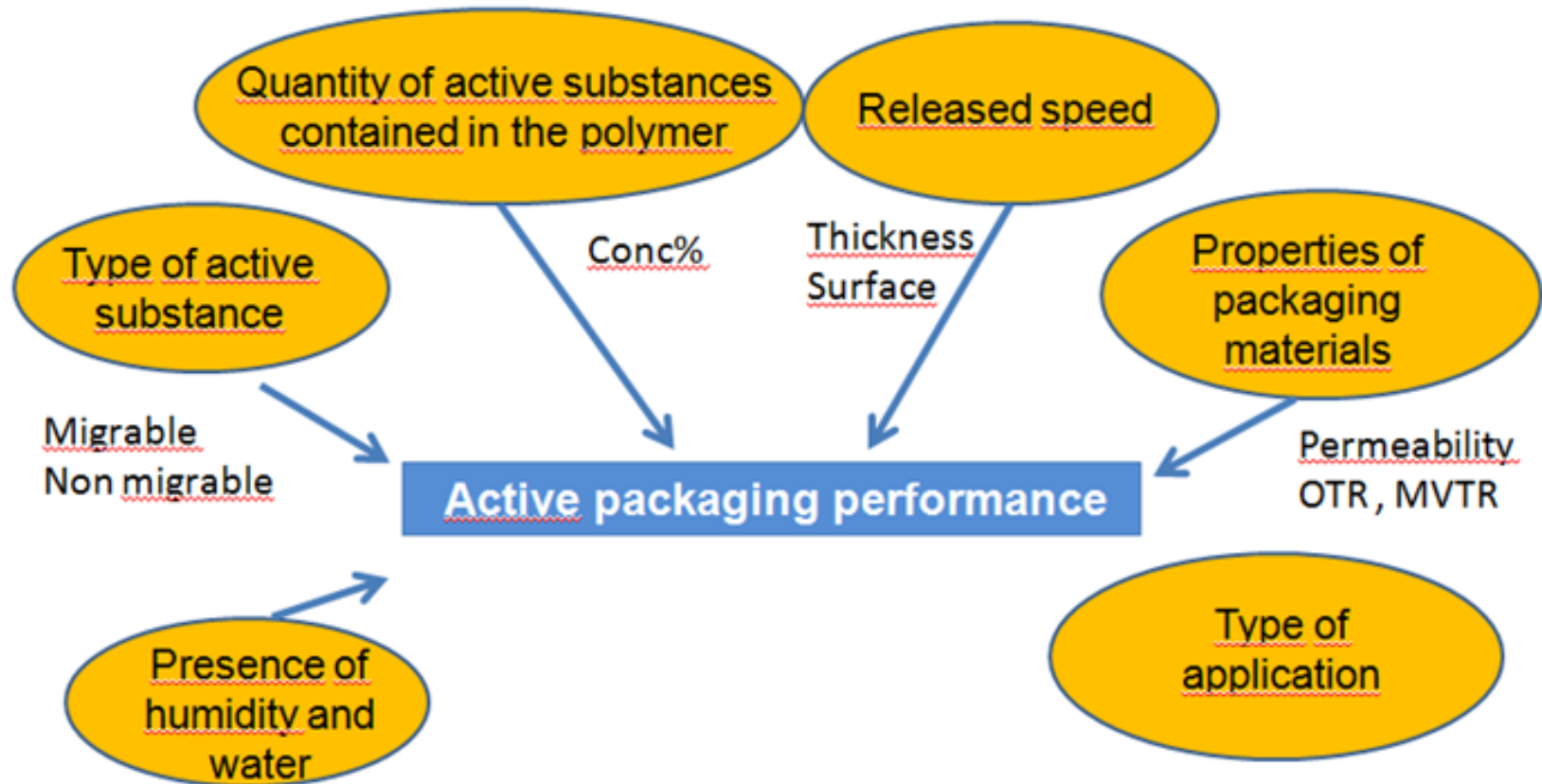
-Permeability to gas or MVTR of top film

-Flow-pack, TOP lid, stretch film



NEW PERFORMANCES OF FOOD PACKAGING: ILIP INNOVATION

To summarise...



CONCLUSIONS
INNOVATION @ ILIP
=

“Assumption of Responsibility”

- ✓ Effectiveness of the new packaging solution
- ✓ Assurance of overall Technical performances of the new packaging in the real conditions of use
- ✓ Assurance of compliance to food contact regulations





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Thanks for your attention!

MORE INFO ON:

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