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CARBOVET®

15’ Presentation

CarboVet®

GENEVA, SWITZERLAND

2013

PANCOSMA

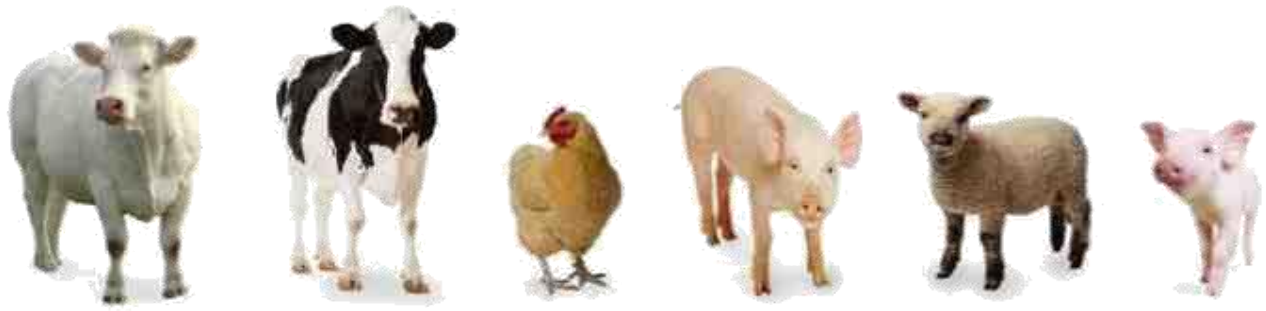
Who we are

Our Group:

- A Swiss company
- Developing, manufacturing, promoting and distributing a wide range of speciality animal nutrition products (Feed Additives)
- Worldwide

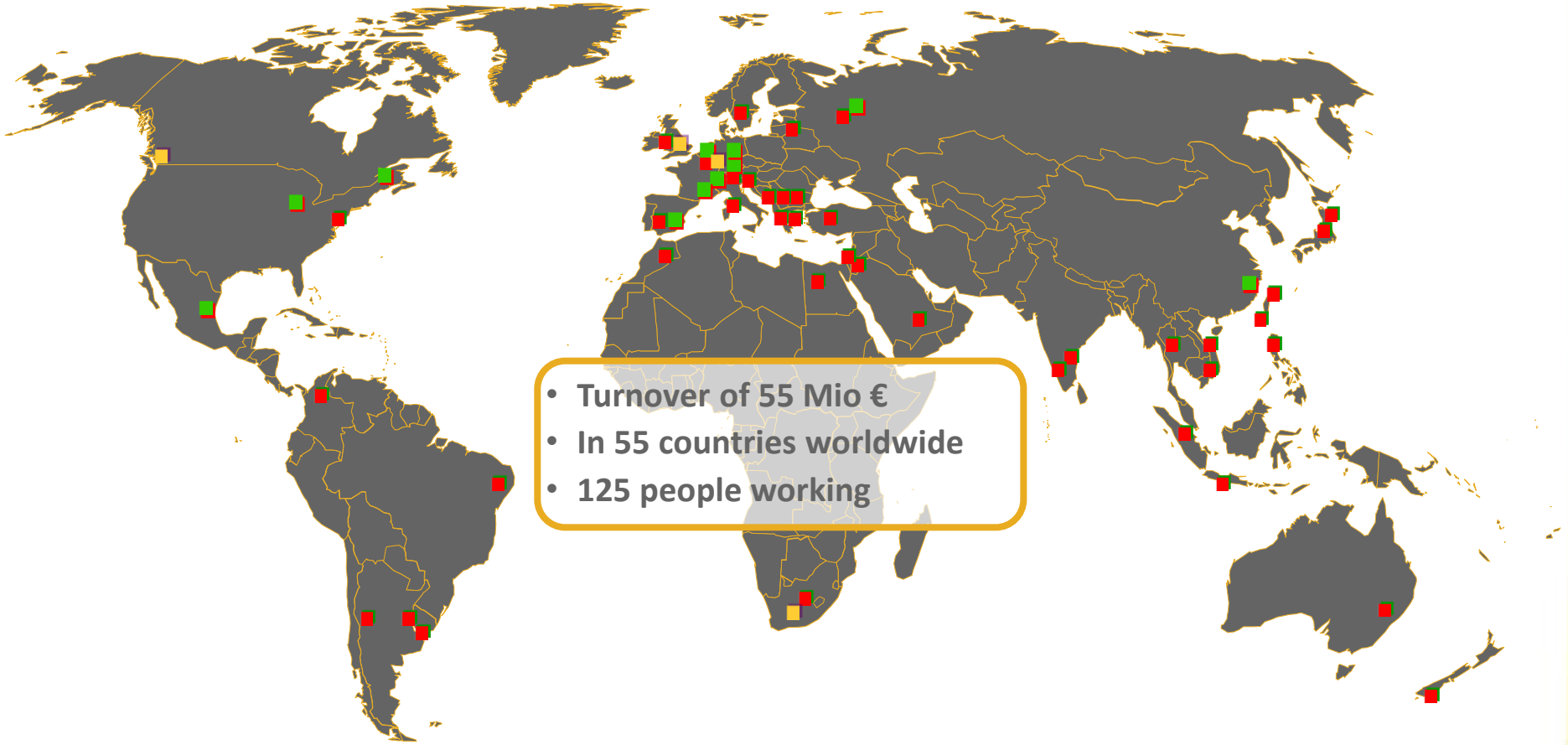
Our main products:

- Flavouring and Sweetening palatants
- Bioactives (phytogenic additives)
- Organic Trace Minerals
- Enterotoxins binders
- Acidifier blends



PANCOSMA'S NETWORK

Where we are



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PANCOSMA'S PRODUCTS

What we do (1/2)

PALATANTS WORLDLEADER

PAN-TEK®

Flavouring palatants : PAN-TEK flavoring palatants are combinations of aromatic substances which exhibit both olfactory and gustatory properties.

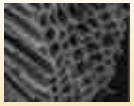
SUCRAM

Sweetening palatants : The results of the intimate and patented combination of Saccharine, potentiators and enhancers in an atomized IFT particle.

BIOACTIVES WORLDLEADER

XTRACT

Standardized micro-encapsulated combinations of active substances naturally occurring in aromatic plants and spices.



TOXIN BINDERS EXPERT

CarboVet

Natural material from standardized best quality oak wood, processed with unique technology, to reduce the negative impact of enterotoxins & mycotoxins, with a large spectrum of efficacy

PANCOSMA'S PRODUCTS

What we do (2/2)

MINERALS EXPERT

Organic Trace Elements (Fe, Cu, Zn, Mn & Se) with unique structure and properties:

B-TRAXIM® TEC : Chelates of Soja

B-TRAXIM® 2C : Chelates of Glycine

B-TRAXIM® Selenium.

ACIDIFIERS EXPERT

Specific combinations of acidifiers based on organic and inorganic acids dedicated to feed hygiene and gut control.

TAKTIK LEADER

Solutions combining multiple know-how from Pancosma for tailor-made, specific and targeted applications and effects.

PANCOSMA'S HEADQUARTER AND PRODUCTION PLANTS

Where we produce

Production Plant, ERBO, Switzerland

Headquarter and production plant, Geneva, SWITZERLAND

SUCRAM

Production Plant, FRANCE

PAN-TEK®

Production Plant, CANADA

Production Plant, FRANCE

Production Plant, POLAND

Production Plant, CHINA

SUCRAM

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A UNIQUE PROCESS

A process designed for specific targets

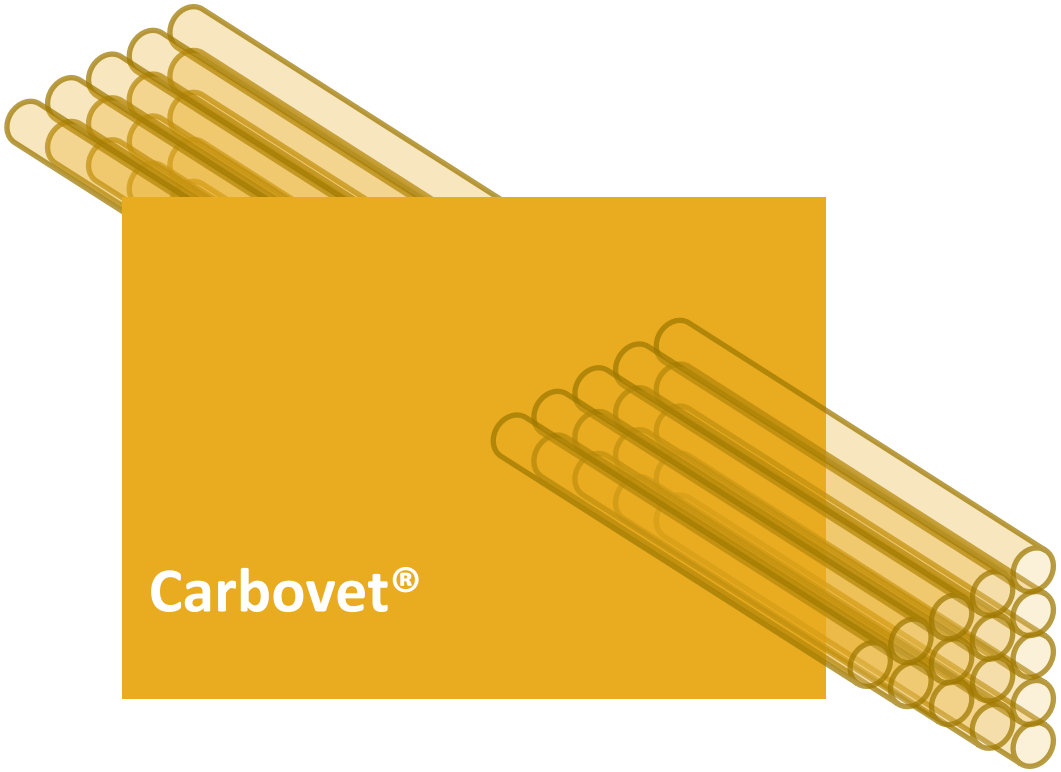
- Carbovet® is produced in France according to a very specific process
- Objective is to obtain the desired **pore structure** thanks to specific material and process
    1. **Parameters of heating** is essential to obtain and conserve the large pores
    2. Specific **temperature** : 550 to 600 °C
    3. No O_2, no CO_2,no steam added during the process / **no activation** step to maintain the wood structure
- After heating, product is grinded and sieved to produce the different types of Carbovet® (P, T, XL)

… Processed with unique technology to obtain a very specific structure and regular quality

A DEFINITE PORE STRUCTURE

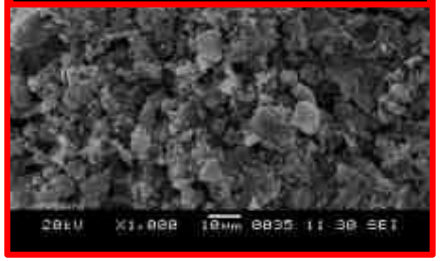
Material & process lead to accurate system

- Structure of Carbovet® derives directly from the nature of the wood and the process. Other materials or other processes result in different structures & effects



Bamboo charcoal

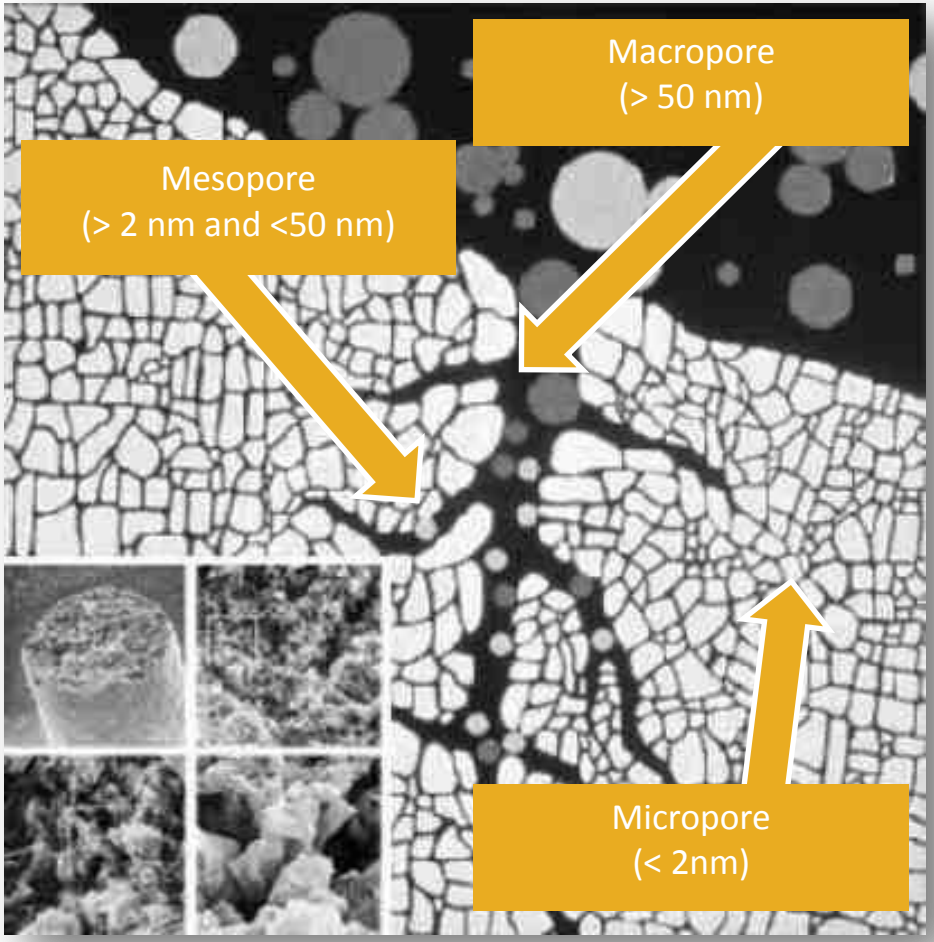
Activated charcoal

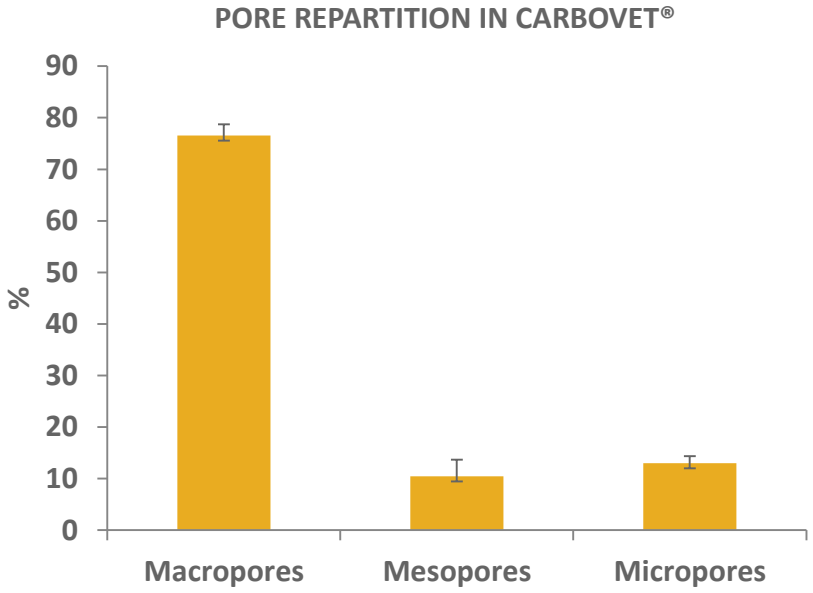


Carbovet® has a specific pore distribution due to unique oak wood and process

SPECIFITIES OF CARBOVET®

A unique pore structure





Carbovet® has a specific distribution of pores with a high share of macropores and mesopores. This gives to Carbovet® a very specific surface area (BET = 180-220 m²/g)

Carbovet® has large share of macropores and mesopores which implies a specific surface area

☞ Somewordsabout BET

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ALTERNATIVE PRODUCTS

Yeast by-products (MOS, etc …)

Yeast by-products (MOS) have usually extremely limited adsorption capacity

But also a very limited spectrum of absorption (i.e. only efficient for few types of mycotoxins) .

Efficacy varies also

RESULTS *IN VITRO*

Carbovet® traps mycotoxins

Objective:

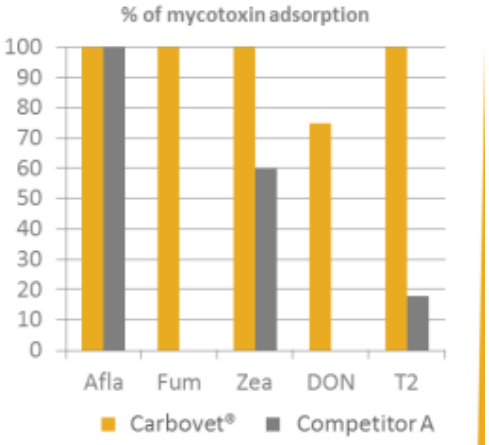
- Determine if Carbovet® is able to trap mycotoxins (aflatoxin (Afla), fumonisin (Fum), zearalenon (Zea), vomitoxin (DON) and tricothecenes (T2)) and comparison to another commercial mycotoxin binder (from yeast)

Treatments:

- Control = 2 ppm mycotoxin
- Carbovet® : Control + 0.1g Carbovet®
- Competitor : Control + 0.1g Competitor

Protocol:

- pH: **6.5**
- 2 ppm mycotoxins in solution (10mL) added to 15 mL screw capFalcon polypropylene tube + 0.1g adsorbent
- Test tubes were centrifuged and mycotoxin analyzed in supernatant



Carbovet® is able to trap mycotoxins at pH 6.5
Carbovet® is more efficient than competitor

24

Pancosma, USA, 2008

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Illustration with competitor A, made of brewers dried yeast. Comparison with Carbovet® (*Pancosma, USA, 2008*)

Other forms are not systematically efficient against mycotoxins and enterotoxins

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ALTERNATIVE PRODUCTS

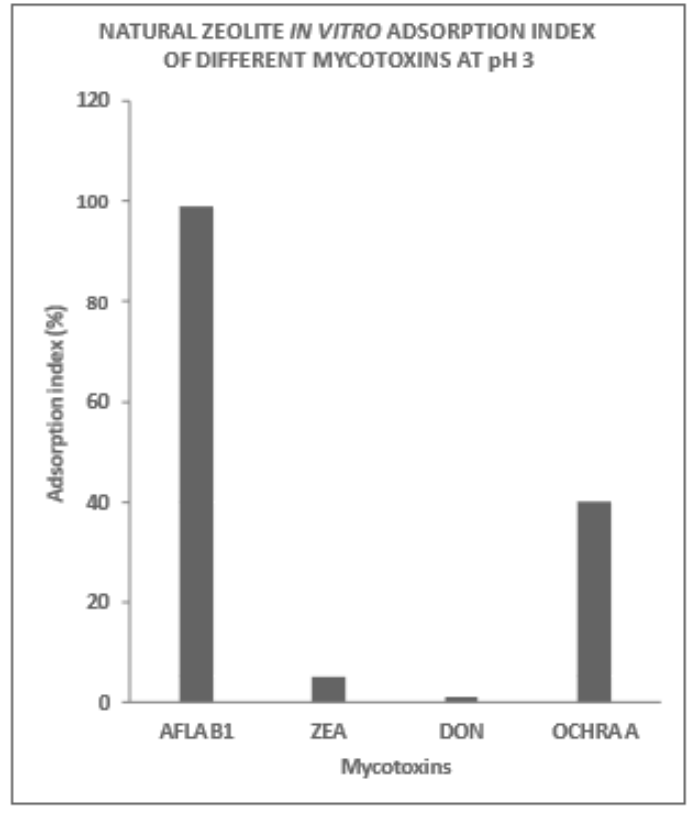
Clays

Efficiency & binding properties of clays vary and depends on structure & (Cationic Exchange Capacity) CEC.

- Kaolinite & sepiolite show limited effect (mainly used as carrier)
- Bentonite shows some effect and can be used as anti-caking agent (Montmorillonite)
- Zeolite shows best effect among clays but heterogeneous (cf. figure)
- Besides, CEC varies with pH

Conclusion:

- Low or heterogeneous effect on mycotoxins
- No effect on enterotoxins



Efficiency of Zeolite for different types of mycotoxins

Tomasevic Canovic M, Dakovic A, Rottinghaus G, Matijasevic S and M Duricic, 2003. Surfactant modified zeolites t new efficient adsorbents for mycotoxins Microporous and Mesoporous materials. 61: 173-180.

Other forms are not systematically efficient against mycotoxins and enterotoxins

Zeolite

Bentonite

Kaolinite

Sepiolite