Safe(r) nanocomposites for food packaging

WHAT ARE NANOCOMPOSITES FOR FOOD PACKAGING?

NANO

One of the particle dimension is **smaller than 100 nm.**

NANOCOMPOSITE

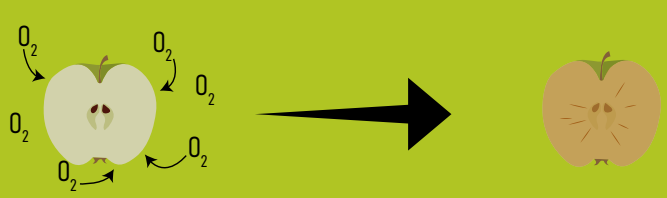
Here a nanocomposite is **the dispersion of nanoparticles in a polymeric material**.

WHY ARE THEY USEFUL?

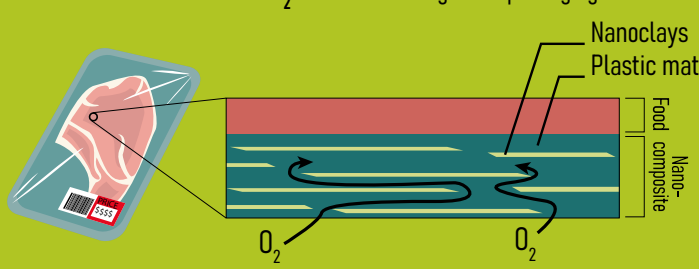
Nanocomposites have several advantages: food tracability analysis, intelligent food packaging and mechanic properties...

A WAY TO PREVENT FOOD OXIDATION?

Dioxygen (O_2) causes **oxidation** of food. This decreases the **quality** and **shelf life** of many food products and causes a huge amount of food losses.



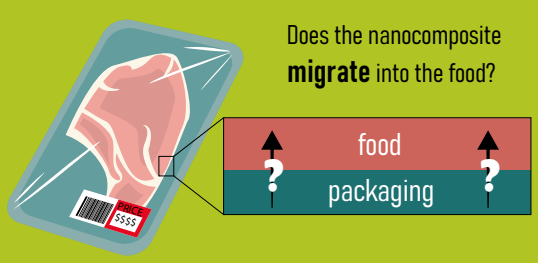
New food packaging using nanocomposites are being studied. Nanoclays, are obstacles to **slow down O_2 transfer** through food packaging.



Nanocomposites using nanoclays can **limit O_2 diffusion, prevent food oxidation and extend the shelf life**.

ARE THEY RISKY?

Before putting these nanocomposites on the market, their **safety** towards human health and environment **has to be verified**.



Does the nanocomposite **migrate** into the food?

Does the presence of nanocomposite has an **impact** on the **biodegradability of the food packaging?**

OBJECTIVE

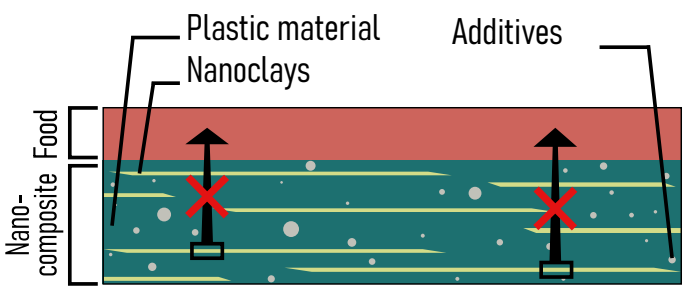
Developing a new food packaging using nanocomposites to **limit O_2 diffusion** while being **safe for human health and the environment**.

SOME RESULTS OF THE PROJECT

Migration of particles during use

Can nanoclays **migrate into the food**?

Migration tests have been performed following **european regulatory recommandations**.



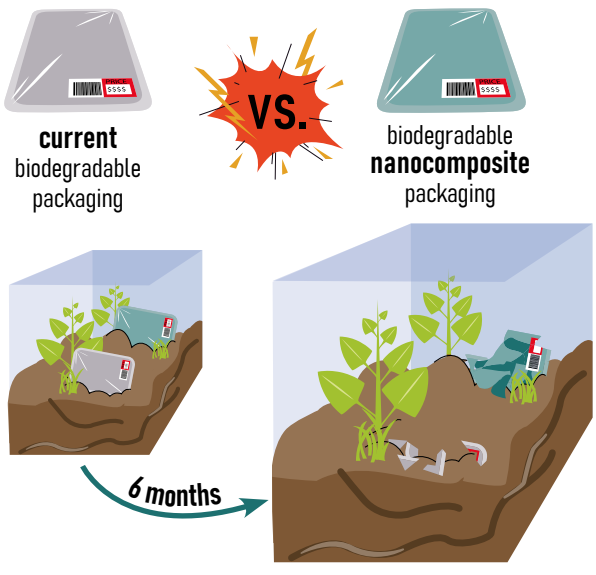
The **migration** of nanoclays, from the packaging to the food, is **hindered.**

Nanocomposites based packaging has demonstrated their **suitability for food contact applications** according to the european reglementary framework.

End-of-life analysis

Are nanocomposite based packaging **biodegradable**?

Current biodegradable packaging and nanocomposites based packaging have been **put in mesocosms** (i.e. miniature ecosystems) during 6 months **to mimic their fate in the environment**.

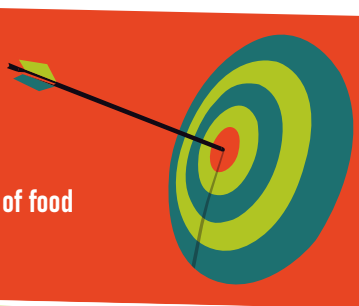


Both the currently approved material and the nanocomposite based packagning **meet biodegradability standards**.

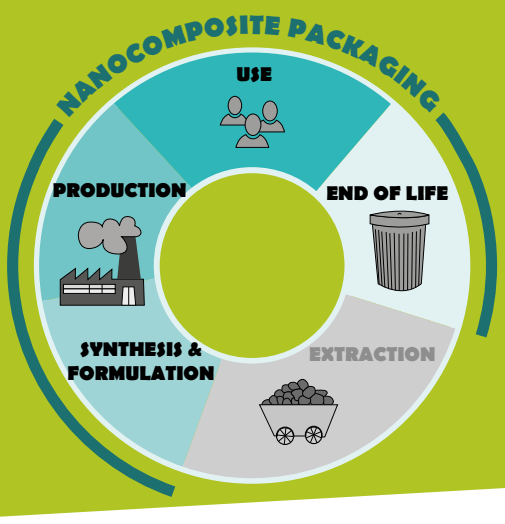
The presence of **nanoclays** in food packaging extends the shelf life of products while **preserving food quality**.
This also **improves its impact on the environment** by:

- **saving material ressources**,
- **limiting food waste and losses** for consumers.

This new food nanocomposite based material is a **very promising innovation to enhance the performances of food packaging safely.**



LIFE CYCLE STAGES STUDIED



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Serenade
Safe(r) Ecodesign Research and Education applied to ANanomaterial DEvelopment.

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