



EVANESTO



“ At CARBIOLICE, we see compostable packaging as a legitimate complement to recycling and a reasoned consumption mode. All initiatives must be considered in the fight against this plastic scourge!

Nadia AUCLAIR, CEO of CARBIOLICE ”

ZERO
IMPACT
PLASTIC



CARBIOCLICE

Biodegradability is the future

BIO- -DEGRA- DABILITY IS THE FUTURE



CARBIOLICE

Biodegradability is the future

Carbiolice is a french joint-venture established in 2016, based on the shared ambitions of CARBIOS, of the SPI investment fund oprated by Bpifrance and Limagrain Ingredients.

Its aim is to design, produce and commercialize **patented solutions that speed up compostability of biobased products** for single-use plastics and packaging, to achieve zero waste and provide an answer to sustainable development issues.



EVANESTO

Zero Impact PLAsTic

CARBIOLICE has successfully created an **innovative, unique and universal sustainable solution for PLA based plastics**. By combining its expertise in compounding, formulation and process development with the enzyme technology developed by Carbios, its main shareholder, CARBIOLICE makes **PLA fully compostable in domestic conditions (NF T51-800)**.

EVANESTO® will be commercialized at the beginning of 2020 for films before a wider commercialization for rigid packaging.

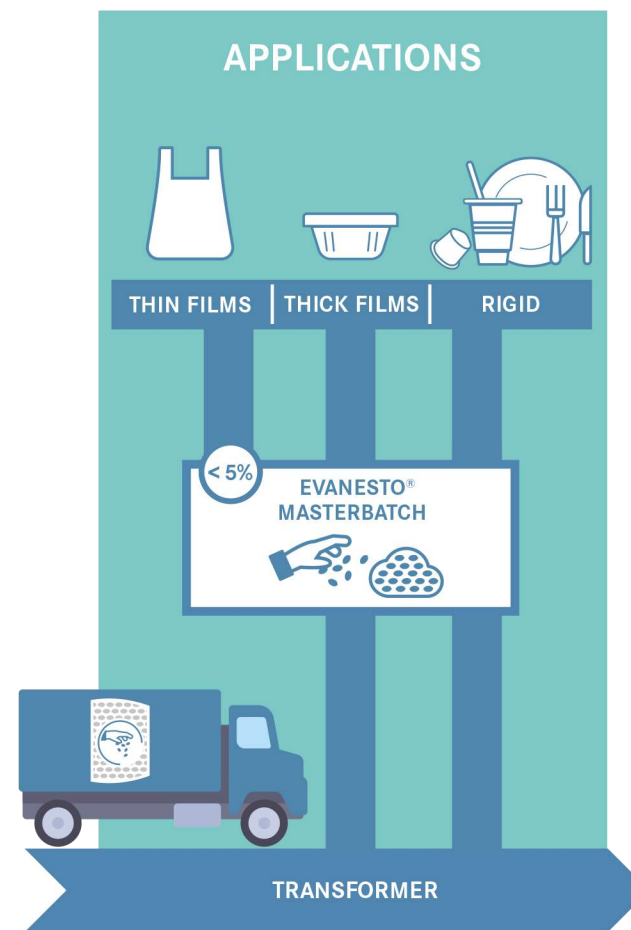
EVANESTO[®], an enzymated concentrate to make PLA materials fully compostable in domestic conditions

Evanesto[®] Production



CARBIO LICE **formulates the enzyme** produced by its partner Novozymes so that the enzyme activity is protected at high temperatures. The enzyme takes the form of an additive named **EVANESTO[®]**.

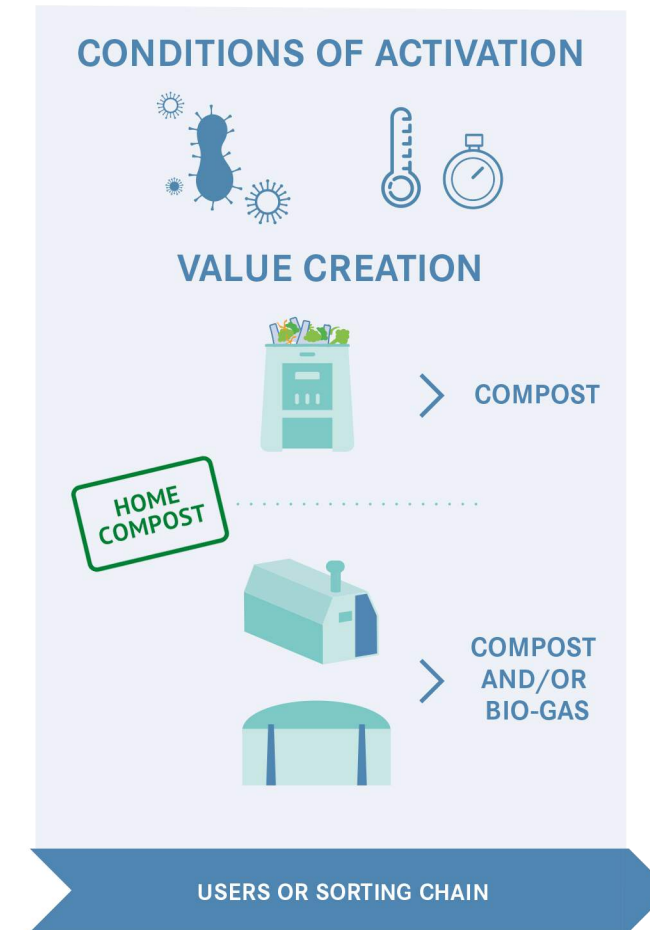
Evanesto[®] Inside



EVANESTO[®] is added to a compound with a high content of PLA during **conventional converting processes** like film extrusion, thermoforming, injection molding.

The **enzyme is inactive during** the entire period of the product use.

Evanesto[®] Activation



A combination of conditions is necessary to **activate the enzyme**. With **EVANESTO[®]**, PLA becomes compostable in home composting conditions (NF T51-800). It facilitates and accelerates industrial composting and generates bio-gas in methanization.

EVANESTO[®] INSIDE

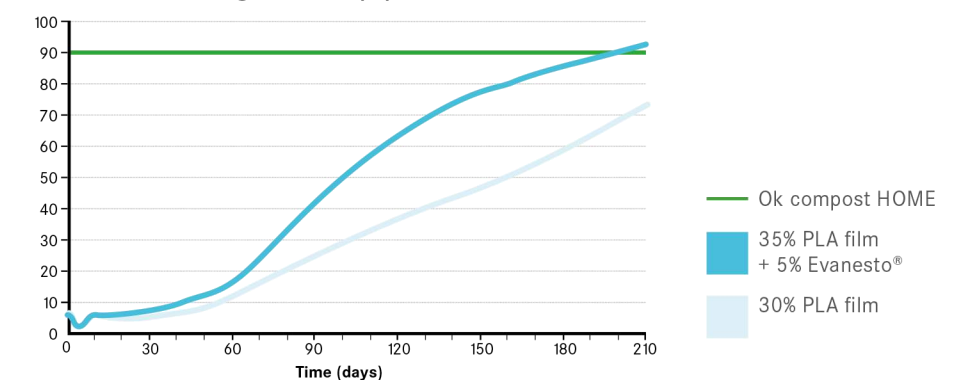


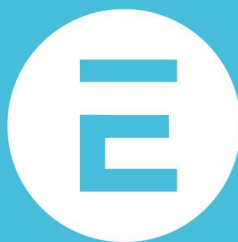
35% PLA content in 15 μ m thin blown films results, in home composting conditions.

Tests carried out by the independent laboratory OWS in home composting conditions, on thin films with a 35% PLA content and a 5% EVANESTO[®] rate, the rest being other biodegradable polyesters, such as PBAT, TPS...



Relative biodegradation (%)





EVANESTO

Zero Impact PLAstic

CARBOLICE INNOVATION to make PLA materials **fully compostable**



**Unique and patented
enzymated concentrate**



**Environment-friendly
end-of-life**, free from
any toxic by-product



**Plastics' properties
conservation**
*Shelflife, barrier properties,
mechanical resistance...*
Processability improvement

Do not throw on the public highway