



oerlemans packaging^{BV}

PACKAGING AND HORTICULTURAL FILMS

BIO-BASED

What is bio-based?

- Bio-based materials are made out of plants.
 - Plants are renewable, petroleum ain't.

Durability versus traditional fossil raw materials?

The durability of bio-based can especially be found in the the neutrality of the CO₂ emissions. You will not use 'old' CO₂ made of the fossil material petroleum, but a 'fresh' one that has used his CO₂ to grow as a vegetable/plant. By the biodegradability this CO₂ comes back in the sky and it will be used for the next plant.

Bio-based – compostable

- The film is mostly made of:
 - Bio-polyester (petroleum) An percentage, because this material is ofcourse not bio-based. It will be mixed with follow materials:
and
 - PLA – Poly Lactic Acid (corn)
and /or
 - Starch (cereals / potatoes)
and /or
 - PHA - Polyhydroxyalkanoates (bacteria)
 - Characteristics – depending on the raw materials and mixes we make.
 - Minimal order size basically 2 times the width in millimeters). The start up certainly requires 3,5 hours running time.
 - Thickness of 7 up to 200 µm.

Solutions in films and packaging

Biobased – I'm Green PE (sugarcane)

- Characteristics – mostly equal to our standard PE materials.
- Shrinkfilm is also a possibility.
- Minimal order size is equal to LDPE.
- Minimal thickness and blow width is equal to LDPE.
- For production there will be no deforestation.
- Of the whole agricultural land, there is only 1 % used in Brasil for production of Ethanol.
- The transport costs from Brasil are similar to the costs from, for example, the Emirates.
- The green PE is recyclable as normal PE. There won't be any differences.

Biodegradable:

The biodegradability can be putted in motion by:

- UV-light
 - The UV-beams of the light will do the job. This is also known as "UV-degradable" (sun).
- Oxo-degradable (We don't want this, so we don't sell it)
 - By adding an additive, the film falls apart. So a fragmentable film that falls apart into micro polymers.
- Bio- degradable
 - Degrades up and under the ground by bacteria/fungus to water, biomass, dioxide and/or methane. This can be both the anaerobe as the aerobic bacteria.
- Compostable
 - The film degrades in a professional composting plant by moisture and heat (> 50-60 graden Celsius). It will fall at least for 99% apart into CO₂, water en humus. There are international standards for this: ASTM 6400 en EN13432.

The speed of degradation:

This depends on the way of degradation and the thickness of the film. The film will be more or less be consumed from the outside to the inside. So thick film got a higher durability than thin film.