

PAPER Pallet Wrapping SYSTEM



STRICTER
REGULATIONS
are being implemented
TOWARDS CIRCULAR
ECONOMY



Advantage StretchWrap – a sustainable wrapping solution



Up to **62% lower CO₂e emissions**
vs. virgin stretch film



Made out of **Nordic fibres** at
our Dynäs mill in Sweden



Result of **20 years** of paper
wrapping know-how



For pallets with a max. size of
1300 x 1300 x 3000mm and weight
of up to 1500kg



Advantage StretchWrap & PaperWrap overall performance



**Higher Pallet
stability***
during pallet
transportation



**Printing
on paper
possible**



**No coating
on the paper**



**Less reel changes
due to bigger reel**



**Rain water
impacts on
strength**

*During acceleration tests (EUMOS Standard for 0,5 G)
the deformation of the pallet wrapped with Advantage
StretchWrap was 30% less VS. plastic film

Advantage StretchWrap – benefits

Customisation:

- + Printing & branding capabilities: add your logo, advertisement, bar codes or QR codes



Protection:

- + Corner protectors and plastic straps are no longer necessary.



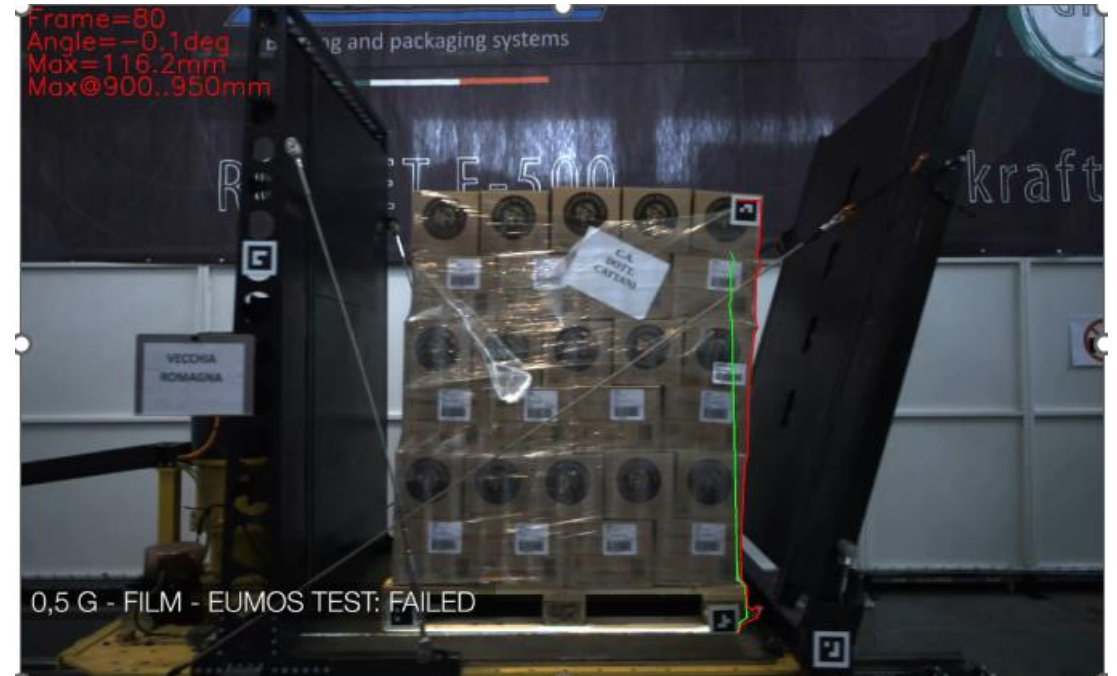
Efficiency:

- + No seasoning of paper bags before pallet wrapping.




Pallet stability comparison

Test of a pallet wrapped in Advantage Stretchwrap vs stretch film at the force of 0.5G.



The pallet wrapped in Stretchwrap has **30% less** vertical deformation vs a pallet wrapped in stretch film.

 **Test:** Eumos 0.5 G. pallet comparison

Advantage StretchWrap – applications

Corrugated Board & Paper Bags



Filled Bags & Buckets



Beverage:
glass bottles
plastic bottles
cans



Technoplat PW

designed by **ROBOPAC**



- + Wrapping up to 25 pallets / hour
- + Fully automatic
- + Reels – 25kg

Technoplat 3000 PWJ

designed by **ROBOPAC**



- + Wrapping up to 70 pallets / hour
- + Fully automatic
- + Reels – 450kg

THE SUSTAINABLE WRAPPING



Advantage StretchWrap

Use: Pallet wrapping of structured pallets

EASY AND VALUABLE SOLUTION TO ACCOMPLISH YOUR CIRCULAR ECONOMY VISION

- + **Lightweight** paper of 70 gsm
- + Exceptional **tensile energy absorption**; combines stretch and tensile strength, so the wrapped pallet resists tearing during transportation
- + **No recycled content**, which could impact on its strength
- + **No coating** on its surface that make it recyclable, but sensitive to heavy rain
- + **Recyclable** in paper streams and of high recycling value as secondary material (*Paper waste for recyclers*)
- + **Resists breaking** due to its high **puncture resistance**
- + Successfully tested for **safe transport** according to EUMOS standard. Different G forces applied according to the standard.

Technical values				
Properties		Method		Typical values
Thickness	µm	ISO 534		105
Tensile strength	kN/m	ISO 1924-3	MD CD	7,8 3,3
Stretch	%	ISO 1924-3	MD CD	11 10
Tensile Energy Absorption	J/m ²	ISO 1924-3	MD CD	420 245
Tear strength	mN	ISO 1974	MD CD	760 1340

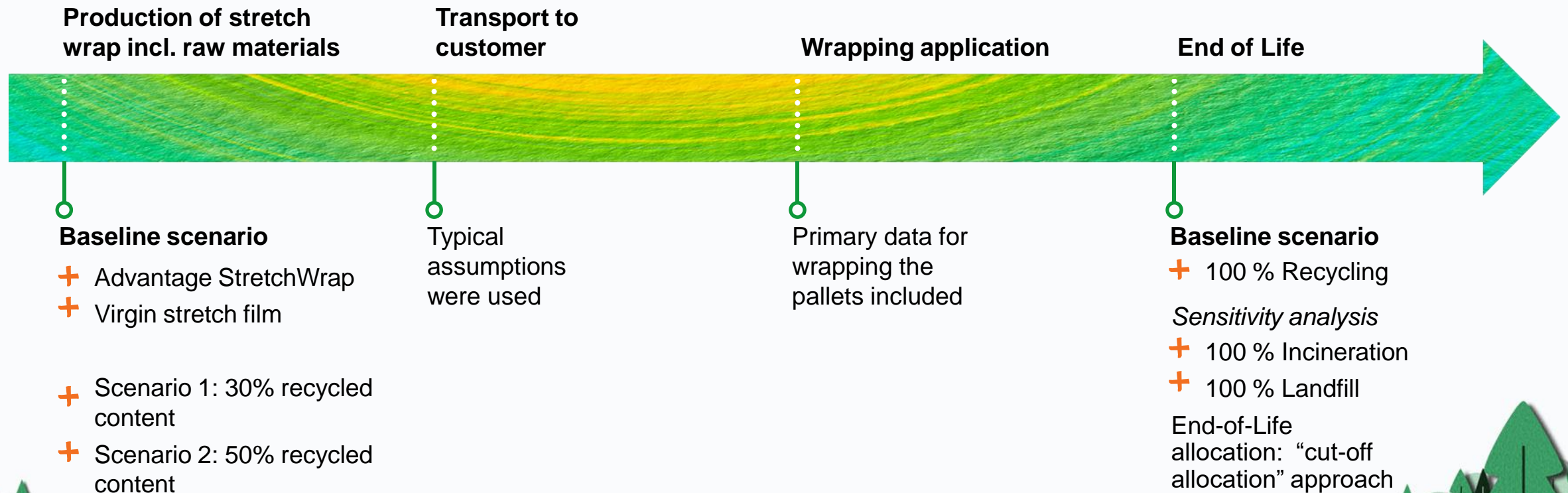
LIFE CYCLE Assessment

 Results overview



Life cycle stages: What was taken into consideration

Cradle to customer + end-of-life



More information can be found [here](#)

Functional Unit & Input Data



Functional Unit

The packaging required to wrap one Euro-pallet at the customer for the transportation of goods, excluding the pallet itself, further transport or product losses. The end-of-life of the wrap is included.



The reference flows in the LCA are:



Paper-based **Advantage StretchWrap**: 840g per Euro-pallet



Plastic stretch film, 30% recycled content: 400g per Euro-pallet



Plastic stretch film, 0% recycled content: 400g per Euro-pallet



Plastic stretch film, 50% recycled content: 400g per Euro-pallet



Baseline scenario: Recycled at the End-of-Life



Input Data

Advantage StretchWrap

- + Primary data from site (Mondi Dynäs)
- + Background data from ecoinvent
- + Transport assumed from Sweden to customer

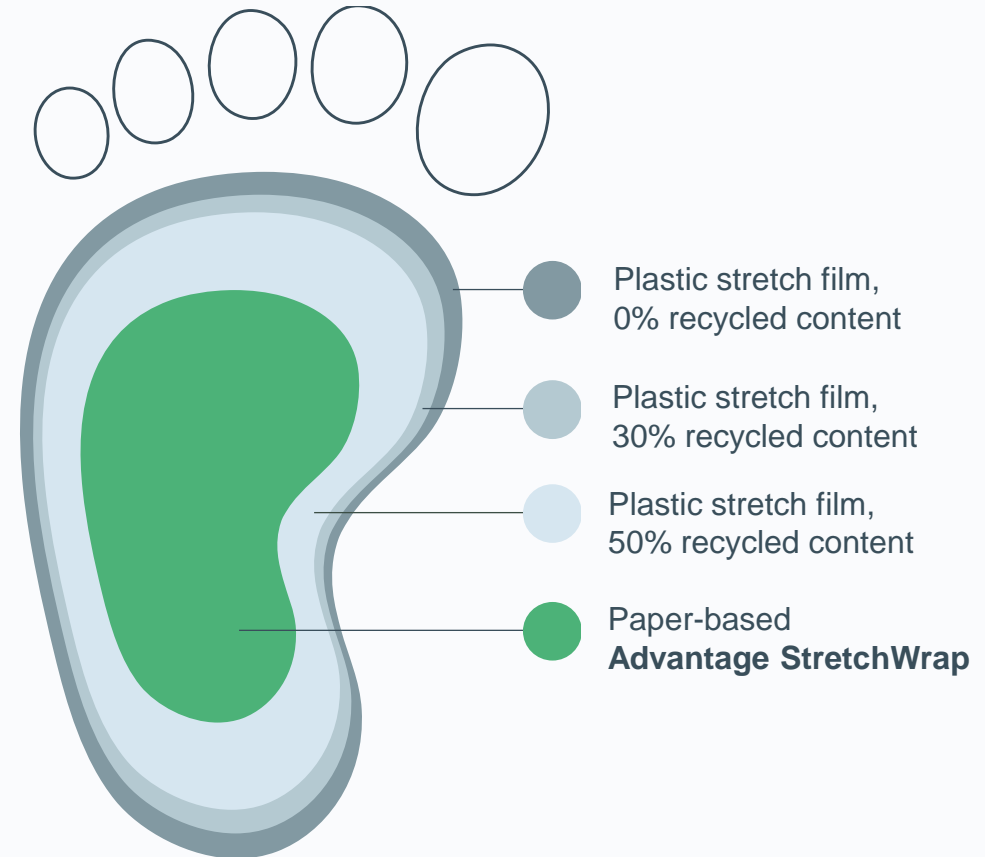
Plastic stretch film

- + PlasticsEurope and ecoinvent data were used
- + Transport assumed to be a typical distance within Europe from production plant to customer

More information can be found [here](#)

Key results overview

Advantage StretchWrap's
Carbon footprint is:







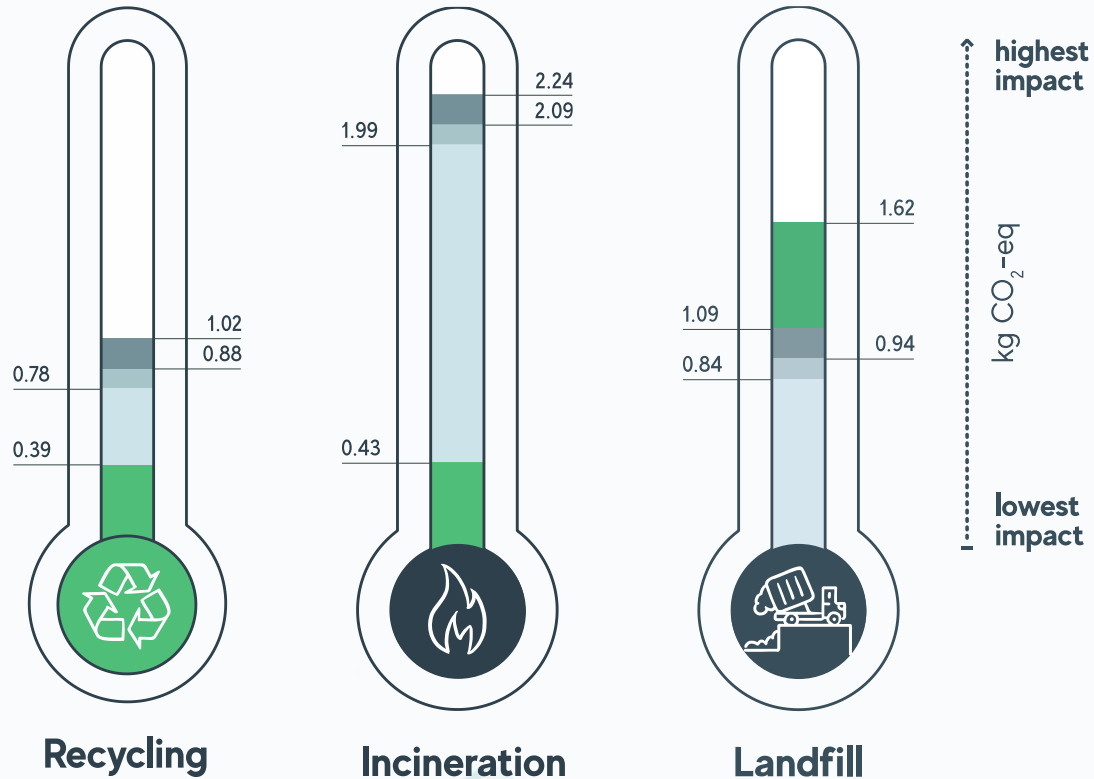
The carbon footprint of paper-based *Advantage StretchWrap* (840g per Euro-pallet) and plastic stretch film (400g per Euro-pallet), with 0%, 30%, and 50% recycled content respectively, in kg CO₂-eq per Euro-pallet wrapped.

More information can be found [here](#)

Climate Change impact across **the full life cycle**

(kg CO₂ eq)

-  Plastic stretch film, 0% recycled content
-  Plastic stretch film, 30% recycled content
-  Plastic stretch film, 50% recycled content
-  Paper-based Advantage StretchWrap



Recycling is the best end-of life scenario for paper, but also for plastic.



General Results Comparison of environmental impacts

Advantage StretchWrap is responsible for lower impacts than plastic stretch film in these categories:



Climate change



Fossil resource use



Ionising radiation



Particulate matter



Human toxicity (cancer)



Human toxicity (non-cancer)



Freshwater ecotoxicity



Acidification



Metal and mineral resource use

More information can be found [here](#)



THANK YOU

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