The Sustainability Challenge

Flexible Packaging

as part of the solution

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WINDMÖLLER & HÖLSCHER

78 %

of global consumers feel that evironmental sustainability is important.

The global challenges are bigger than ever before!

Climate change
Reduce the carbon footprint

Environmental protection
Reduce waste and resource consumption

World hunger
Save food

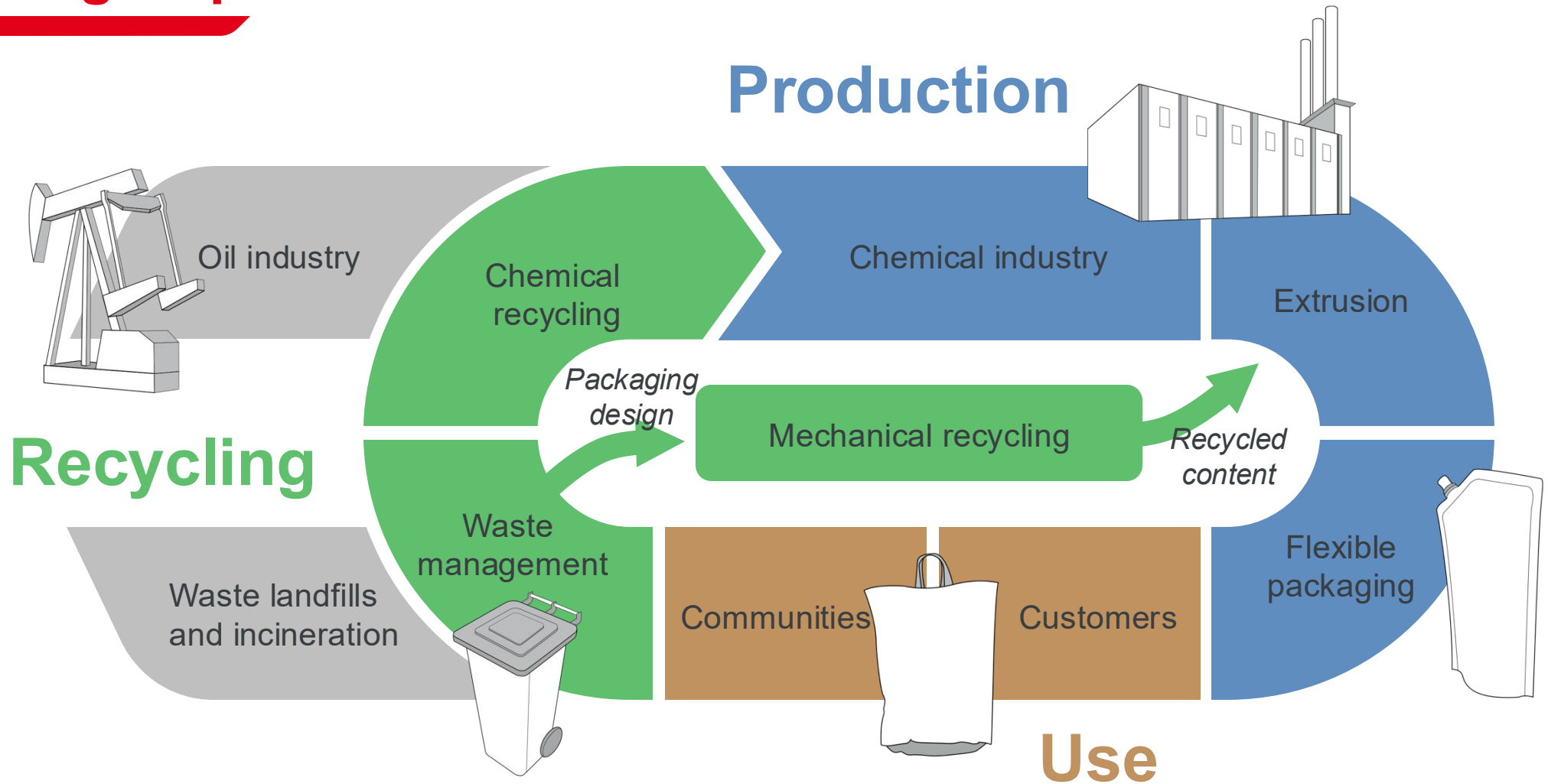
…Flexible packaging

offers a lot of possibilities to deal with these challenges!

- ✔ Low carbon footprint
- ✔ Long shelf life
- ✔ Low transportation weight
- ✔ Robust and hygienic

…but only IF we tackle the challenge of waste management and pollution!

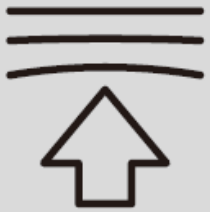
The goal: A circular economy in which resources are used for as long as possible



Sorting of Waste

Requirements of Flexible Packaging

Good oxygen/water barrier performance



Outstanding stiffness for good convertibility

High optics for shelf appeal

Typical laminates with high barrier

- ✓ PET / ALU / PE (or CPP)
- ✓ PET / VMPET / PE (or CPP)
- ✓ PET / ALU / PA / PE (or CPP)
- ✓ PET / ALU / PET / RCPP

Unfortunately, they are not recyclable

and

are most likely to be banned by upcoming regulations (EU)

Packaging and Packaging Waste Regulation (PPWR)

Main objectives:

1. Packaging Waste in the EU is to be reduced 5% by 2030, 10% by 2035, and 15% by 2040.
2. Many single-use plastic packaging under Grade E (recyclability is less than 70%) will be banned from 2030.
3. Lack of recyclability will be penalized, including Paper-Plastic Hybrid packaging materials.
4. Deceptive Packaging -
   Packaging with an oversized amount of empty space compared to the contents, will be restricted.

Talk of the town....: The ALL-PE Stand-up Pouch: 100% Recyclable

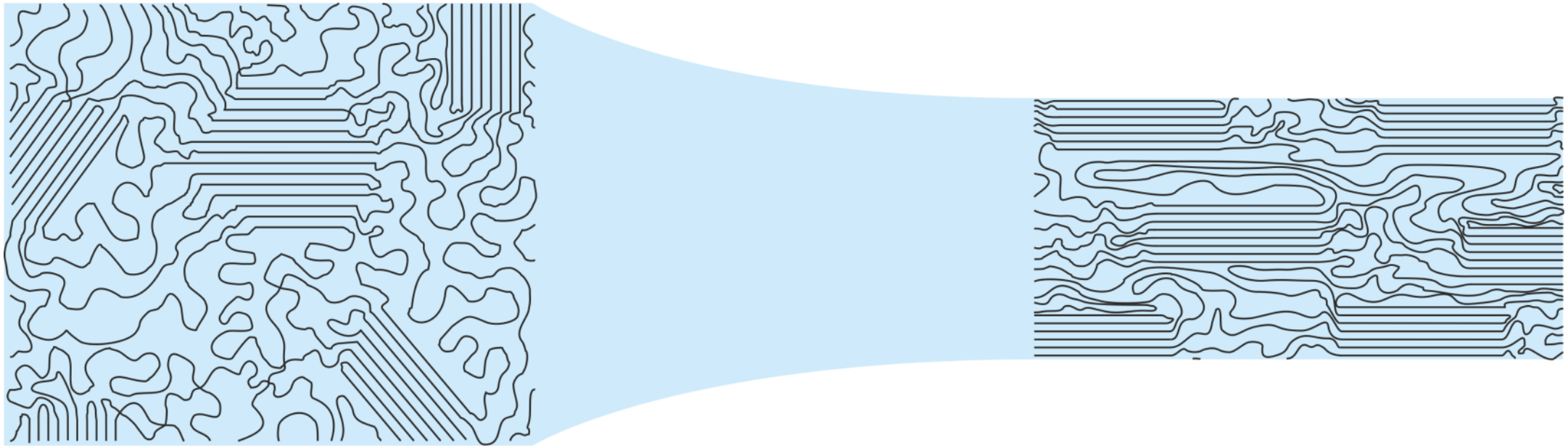
- Made from one material
- Very good protective properties
- Extends shelf life
- Compact to transport

- Easy
- 100% recyclable
- Secure
- Minimal CO_2 Footprint

MDO – Machine Direction Orientation

Stretching the film in the direction of the extrusion machine

MDO changes the film properties

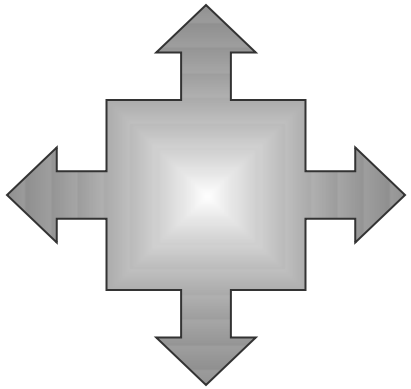


MDO – Machine Direction Orientation

Improvement of Film Properties

Optical properties
- ✔ Gloss
- ✔ Transparency
- ✔ Haze

Mechanical properties
- ✔ Stiffness in MD
- ✔ Tear resistance
- ✔ Elongation in MD



Overall properties
- ✔ Improved flatness
- ✔ Shrinkage
- ✔ Down gauging

Barrier properties
- ✔ OTR
- ✔ WVTR

MDO unit installations are increasing…

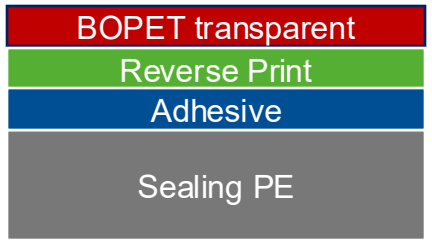
- 180+ MDO installed
- 18 MDO installed in South-East Asia (excl. China)
- 3 MDO (blown and cast) in W&H lab

It´s already in the shelves – Worldwide!

From Multimaterial to Monomaterial Packaging Structures

Multimaterial

Typical Structure



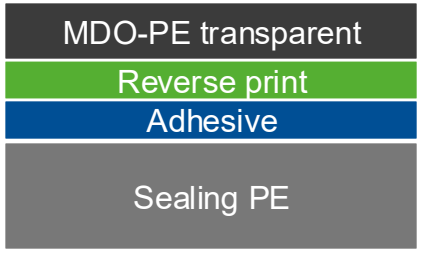
Recyclability

Recyclability:

Replacement of PET with MDO-PE

Monomaterial

Typical Structure



Recyclability

Recyclability:

What about Asia?

Monomaterial Packaging Structure

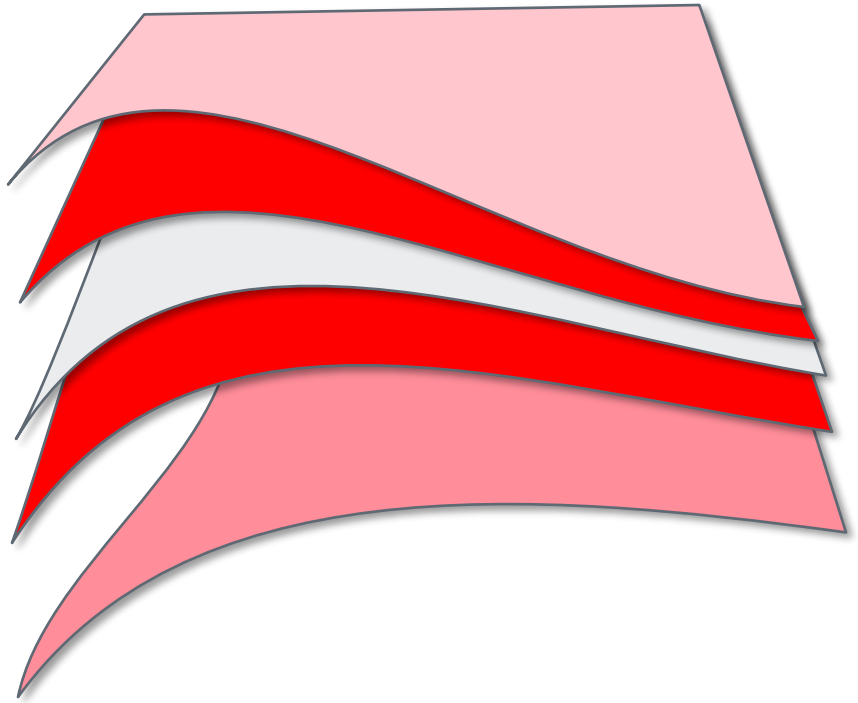
MDO-PE - Printed

Solventless Adhesive

MDO-PE with ALOx Coating

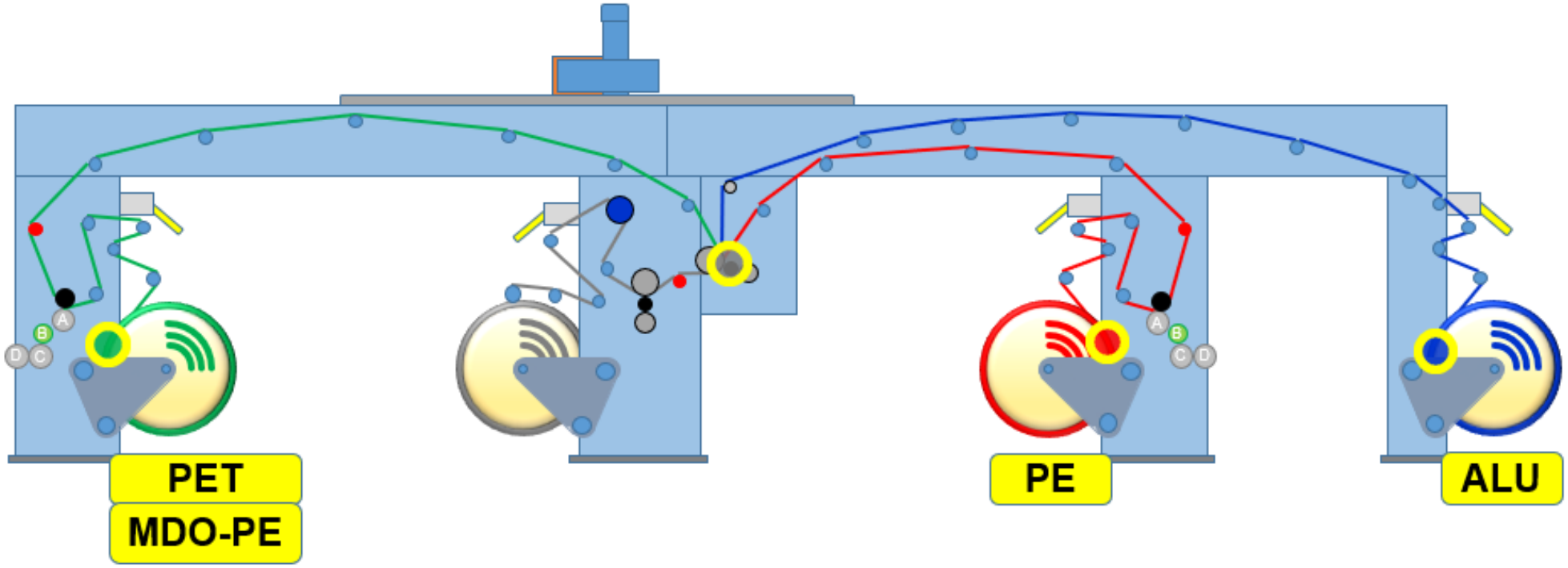
Solventless Adhesive

PE



MDO-PE / AlOx-MDOPE / PE

MDO-PE or PET / ALU / PE lamination – solventless in one shot



Nordmeccanica Triplex

What to do?


MDO-PE + AlOx/SiOx coatings
etc.
MDO-EVOH + PE
MDO-PE + barrier lacquer
MDO-PE + EVOH sealing film

W&H Portfolio – System Supplier

Blown-film / Cast-film extrusion

CI flexo / Gravure Printing presses

Our partners
- Nordmeccanica
- B&B
- Kampf

Your partner if it comes to barrier film applications & sustainability

Do you have any questions?