Introduction & Progress Update

Q2 2018
Who We Are

CEFLEX is a collaborative initiative of a European consortium of companies and associations representing the entire value chain of flexible packaging to enhance the performance of flexible packaging in the circular economy.
The Value Chain
The Stakeholders*

MATERIAL PRODUCERS

FLEXIBLE PACKAGING CONVERTERS

BRAND OWNERS AND RETAILERS

COLLECTORS, SORTERS AND RECYCLERS

SUPPLIERS, END USERS AND OTHERS

*Stakeholders without a logo, mentioned below their respective group
Our Vision for the Circular Economy

The CEFLEX initiative will make flexible packaging more relevant to the circular economy by advancing better system design solutions via collaboration of companies representing the entire value chain.

CEFLEX Vision

By 2020 flexible packaging will be recognised for the significant value it adds to the circular economy, by robustly measuring, demonstrating and communicating:
- its resource efficiency
- the waste prevention benefits
- its relevance in a circular economy

By 2025 there will be an established collection, sorting and reprocessing infrastructure/economy across Europe for flexible packaging based on end of life technologies and processes which deliver the best economic and environmental outcome for a circular economy.
Project Goals & Deliverables

• **By 2020** flexible packaging will be recycled in an increasing number of European countries, facilitated by CEFLEX initiative through:
  • The development and application of robust **Design for A Circular Economy Guidelines** for both flexible packaging and the “End of Cycle” infrastructure to collect, sort and recycle them
  • The identification and development of **sustainable end markets** for the secondary materials recycled from flexible packaging

• **By 2025** the development of a collection, sorting and reprocessing infrastructure for post-consumer flexible packaging across Europe, facilitated by the CEFLEX initiative through:
  • A robust **business case** for collecting all flexible packaging
  • Successful **pilot projects** to demonstrate “proof of principle”
Design for A Circular Economy (D4ACE)
Guidelines for flexible packaging

D4ACE Guidelines
For packaging developers and the end of cycle value chain

D4ACE Pack Assessment Tool

Future-proofing
Process to update the D4ACE Guidelines

Economic and Environmental impact in a Circular Economy
What does the European Packaging market look like?

• Total EU packaging market: c.a. 84 M T*

• Total EU plastics packaging: c.a. 20 M T**

• Total EU consumer flexible packaging: 4 M T***
  • Not yet collected everywhere in Europe and majority is sent for energy recovery (or landfilled)
  • Sorting and recycling solutions developed in EU can be relevant globally


• Approximately 3 M T of consumer flexible packaging is mono PE or PP material or a PE/PP mix, and it is technically “recycling ready” if it can be sorted into PE or PP film fractions or a mixed PE/PP fraction

• Flexible packaging with aluminium as the dominant material can be sorted into the aluminium fraction and recycled
Multi-material flexible packaging (incl. PE, PP, PA, PET, Alu, paper, etc) represents 0.8 – 1 MT

Today
- Predominantly sent for Recovery as SRF (cement kiln) or RDF (Waste to Energy)
- When Aluminium present, can be sorted recycled using pyrolysis

Future
- Recycle structures with compatible polymers: ex PE/PP and PE or PP/selected barrier with or without a compatibiliser
- Recycle with chemical recycling and other new/existing recycling technologies: eg solvent separation, pyrolysis etc that have been/are being developed and rolled out
- Re-design the packaging, where possible, to be recycled with existing recycled fractions

**these items are sorted out according to DKR 420 for Alu recovery via pyrolysis
1. Collection of flexible packaging is essential to recycling
   If it is not collected, it cannot be sorted for recycling.

2. Sorting needs re-design to include post-consumer flexible packaging
   ~70% is mono PE or PP which, once sorted, can be recycled.

3. Improved design, collection, sorting & recycling solutions* need to be developed/more widely available for the ~30% of flexible packaging which is multi-material/multi-layer with barrier properties.

*This relatively small quantity of multi-material/multi-layer flexible packaging can prevent countries from collecting all flexible packaging.
1. What are the current applications for recycled materials from post-consumer flexible packaging?

2. What are the technical constraints or limitations to increase the demand from current/new applications?

3. Can new, emerging technologies to deliver new sorting and recycling specifications help to overcome these barriers?

4. What technical barriers can only be overcome by new design of flexible packaging structures?

Are there sustainable end markets?
Business Case

Understanding the optimal "End of Cycle" options for flexible packaging

in terms of economic and environmental impact
Show “Proof of Principle” in pilot plant/region/country

- Pilot wide collection of flexible packaging and increase recycling of flexible packaging in a lead region/country by 2021
- Provide “proof of principle” for identified best practice and possible business models developed as part of W4

On-hold pending external funding:
- Clarifying W1 and W6 testing and pilot requirements
- Identifying specific stakeholder pilots
Facilitating Technologies

Identify, communicate and support the rollout of technologies which contribute to circular economy solutions...

**Design**
- Easy to empty
- Adapt design for purpose
- Down-gauging
- Layer optimisation
- Recycled content
- Recycling: compatible inks & adhesives
- Facilitate separation of materials

**Sorting**
- Digital bar-codes**
- Enhanced NIR**
- 2D / 3D sorting**
- Magnetic Density Separation**

**Recycling**
- Washing
- Separation
- Mechanical, Chemical recycling
  - Deinking/Deodorisation
  - Chemical recycling
    - Pyrolysis to feedstock
    - Gasification
  - Pyrolysis for Aluminium recovery
  - Compatibilisers*
  - High-speed flake sorting**
  - Improved washing**

* Specified for testing/optimization in W1
* *Specified for testing/optimization in W3
Communication: Stay in touch!

......more to come!
Our changing world

CEFLEX actively monitors and where appropriate collaborates with all the European high-level initiatives to ensure alignment and compatibility of the work developing the D4ACE Guidelines and “end of cycle” systems and infrastructure.
Contact CEFLEX

For more information

www.CEFLEX.eu

If you want to become a member of the CEFLEX consortium or wish to learn more about the project, contact

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