

## The Circular Economy for Flexible Packaging (CEFLEX) Initiative

**Can Flexible Packaging be Truly Circular?** 

Oct 7<sup>th</sup>, 2022



**CEFLEX** – Introduction, Mission, Vision

ValueFlex – From a CEFLEX Key Deliverable on the Roadmap for the

Demand Driven Circular Economy to a Full Commercial Scale Demonstration





## CEFLEX

- Introduction
- Mission
- Vision

## **CEFLEX: Critical Mass to Make a Circular Economy Happen**



Initiative began in December 2016 with **20** stakeholders







#### Today

**190+** stakeholders

In Europe alone employing **500,000** people in 5,450 locations, more than **1,800** production sites

Combined global turnover of over €1.3 Trillion





Collection of all flexible packaging

With over **80% of materials entering a recycling process** to be returned to the economy



And used in **sustainable end markets** to

substitute virgin fossil-based materials





\* Circular Economy for Flexible Packaging



#### Full material circularity – a CEFLEX priority

Recyclates produced must be both fit for purpose by quality and commercial value

Preferred over new virgin fossil-based materials

### A circular economy for flexible packaging requires all recycling technologies

Film end markets in Europe for mechanically recycled (\*) rPE under 50% of the 10-14 million tonnes of flexible packaging materials

Additional recycling pathways are needed to return the balance of materials to appropriate end markets at the required quality and scale

# Mechanical/physical and chemical recycling solutions are complementary and effective

Each of mechanical and chemical recycling deliver polymers fit or purpose for specific markets Enabled by wide implementation of the CEFLEX Designing for a Circular Economy Guidelines

## **Key Enabler for CE4FP - Design for A Circular Economy**



EXECUTIVE



#### **DESIGNING FOR A CIRCULAR ECONOMY** TECHNICAL DESIGNING Recyclability of polyolefin-based flexible packaging FOR A CIRCULAR ECONOMY Recyclability of polyolefin-based flexible packaging CEFLEX terrent and a second se And the Analysis of States

#### Available from ceflex.eu/guideling



## ValueFlex

-From a CEFLEX Key Deliverable on the Roadmap for the Demand Driven Circular Economy to a Full Commercial Scale Demonstration Plant

## **QRP\*: Innovative Combination of Existing Technologies**

Increasing recyclates quality with 4 extra steps



Each step is implemented at a minimum of one plant in EU but the four steps are not yet all implemented at the same plant

\* Quality Recycling Process

## **QRP** – a **CEFLEX** Technical Project





CEFLEX

The project aims to demonstrate business potential to maximize the value capture from the recycling of all PObased household flexible plastic packaging at scale:

- Demonstrate the opportunity to create value from recycling of flexible household plastic packaging
- Demonstrate commercial viability of such recycling business at scale
- Valorise the full PE flexible and PP flexible streams, utilizing complementary outputs of:
  - Mechanical recycling film grades, both rPE (natural and colour) and rPP
  - Mechanical recycling grades for technical injection moulding, thermoforming, extrusion blow moulding applications
  - rPO mix suitable for chemical recycling with efficient yields.
  - Potential other offtakes for aggregation and processing at a specialized plant (e.g. multi-materials, surface printed structures)
- Ensure a **flexible plant design, accommodating for combinations of the above outlets**, depending on feedstock compositions and market demand, while remaining financially viable

## ValueFlex – A Joint Project in Assessment Phase

- Pre-feasibility study conducted by Roland Berger, AEPW and • CEFLEX
  - **Optimize output streams and technical scope**, robust to different market ٠ scenarios
  - Establish key drivers of profitability, base case economics, sensitivity ٠ analysis and risk assessment
  - Develop target financing structures ٠
  - Stimulate interest of potential funding partners ٠
- The goal: Launch of a bid process to identify an owner/operator • to build and operate a demonstration plant in Europe, by mid 2025



Valorise More, Valorise Better







### Flexible packaging can be truly circular

- 1. Technologies exist, implementation at scale needs acceleration
- 2. Design for recycling is pre-requisite to maximizing recycling rates and economic value in recycling
- 3. Chemical recycling is offering the missing piece of the puzzle to valorize all the flexible packaging waste; we have to accelerate its path to commercial viability and environmental sustainability

Key enablers: value chain collaboration and joint expertise opens ways towards enhanced economic value from recycling.







MissionCircular