



Transformation toward a circular economy

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„With mass balance certification across the entire value chain, we want to achieve complete transparency also for our customers. At the same time we are helping them to reduce their own carbon footprint and are offering them a drop-in solution that they can instantly implement in their existing production processes without the need for technical modifications“

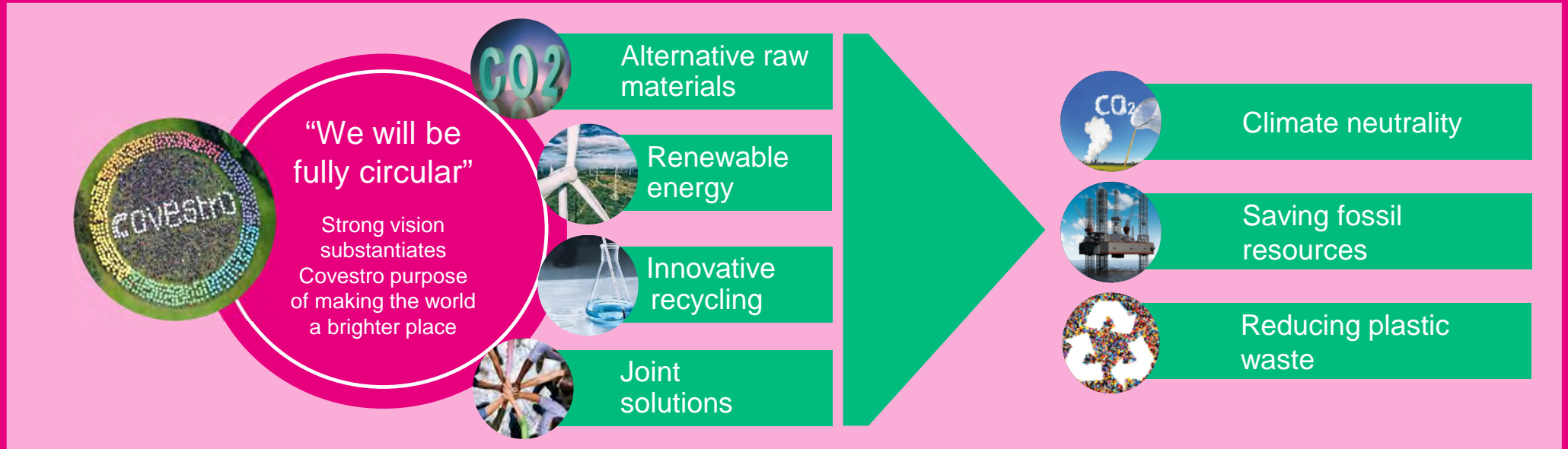
Sucheta Govil

Chief Commercial Officer (CCO), Covestro

COVESTRO TRANSFORMS ITS ACTIVITIES TOWARDS A CIRCULAR ECONOMY TO ADDRESS GLOBAL SUSTAINABILITY CHALLENGES



(Supra)national policies
in US, EU and China

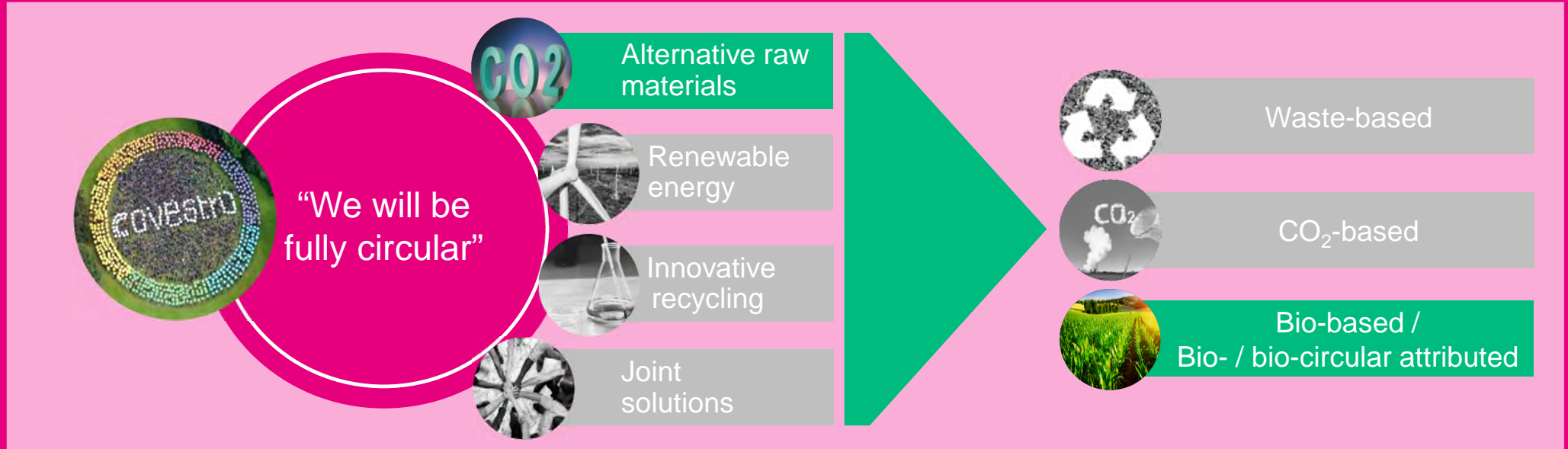


Other external stakeholders
(e.g., Customer, Society, Investors)

COVESTRO STARTS TRANSITION TO A CIRCULAR ECONOMY WITH AVAILABLE ALTERNATIVE RAW MATERIALS USING MASS BALANCE APPROACH



Feedstock for alternative raw materials



COVESTRO INTRODUCES THE MASS BALANCE APPROACH TO OVERCOME EXISTING ENTRY BARRIERS AND ENSURING A FAST SCALE-UP



Barriers to Entry

Use existing technologies to overcome technical hurdles without high-cost investments

High credibility

Increased transparency through certification by 3rd party along the whole value chain



Mass Balance is

- ... fast to implement
- ... easy to scale-up
- ... with low investment hurdles

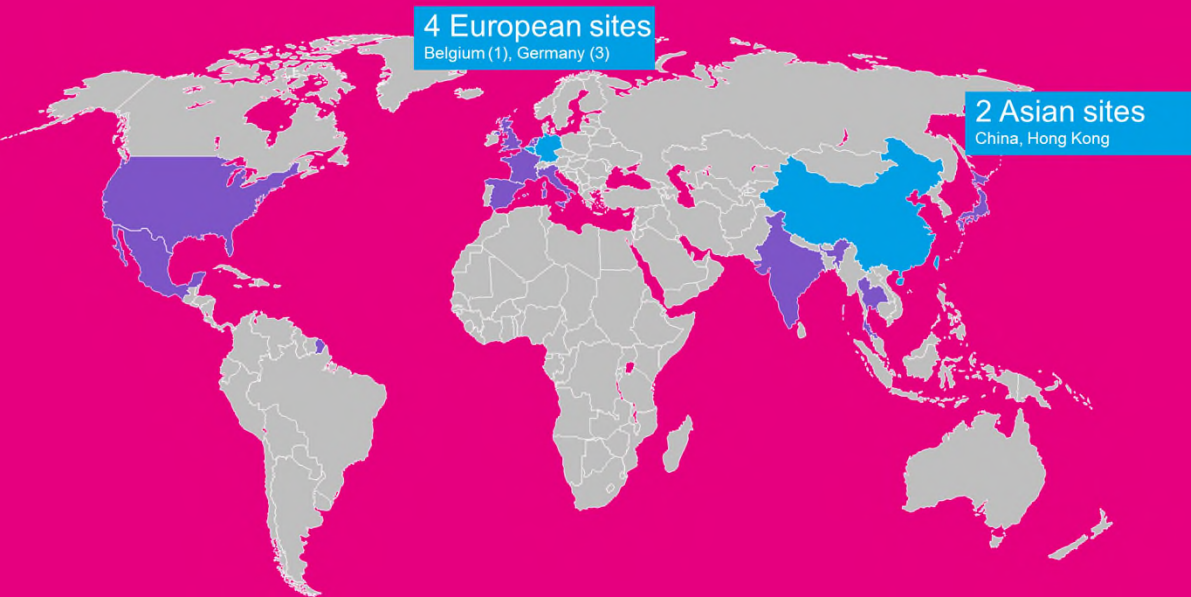
ISCC PLUS represents

- ... broad recognition and high credibility
- ... chemical and technical connectivity to existing production processes
- ... sustainability standards

COVESTRO IS CERTIFIED AT 6 SITES IN 2 REGIONS WITH A DIVERSE PORTFOLIO OF CIRCULAR SOLUTIONS



SOLUTIONS CAN BE USED IN SEVERAL INDUSTRY SEGMENTS



Sports and Leisure



Wood & furniture



Automotive



Insulation



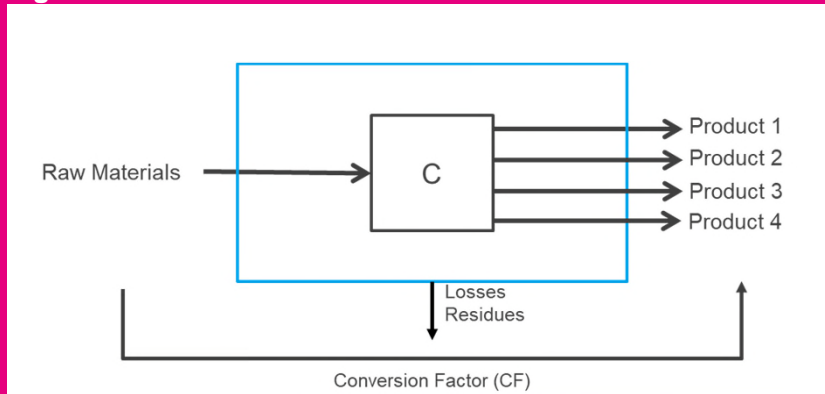
Soft foams



COVESTRO DEVELOPED THE CONCEPT OF APPLYING CONSUMPTION FACTORS JOINTLY WITH ISCC

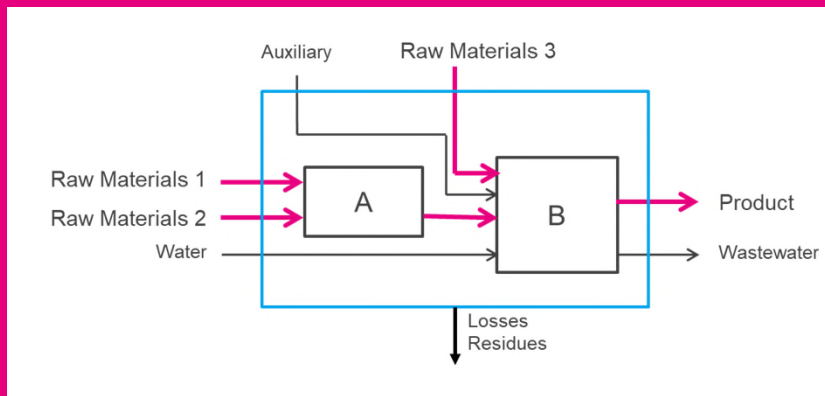


e.g. Cracker

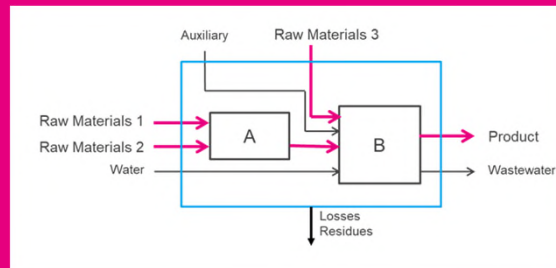
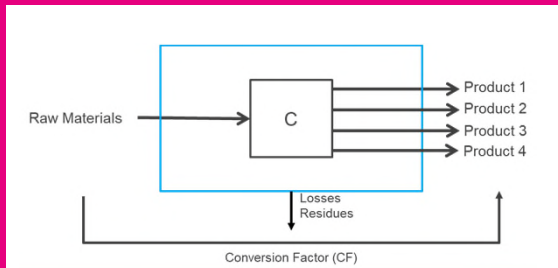


- Concept of conversion factor works well for e.g., cracker (one input – several outputs)
- For complex chemical reactions (> 1 raw material) Covestro decided to not apply the conversion factor concept
- Instead, we developed together with ISCC the calculation of consumption factors. With consumption factors losses are reflected

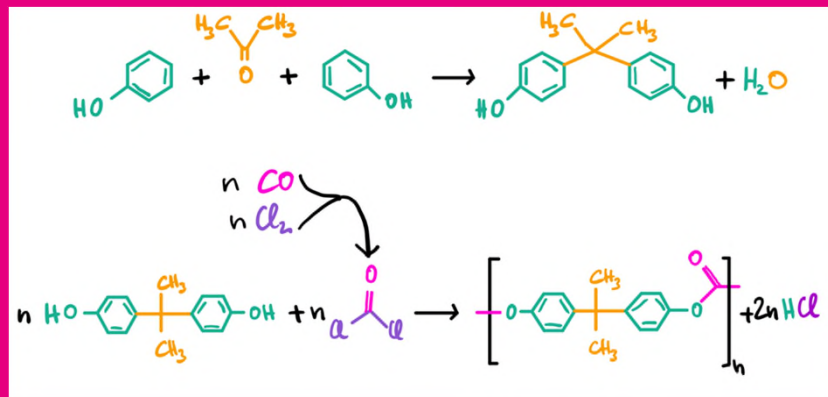
Chemical reaction



COVESTRO ONLY CLAIMS WHAT IS CHEMICALLY AND TECHNICALLY POSSIBLE, ALIGNED WITH ISCC



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- Free attribution will have limited acceptance for complex chemical reactions in LCA
 - Introduction of sustainable share, reflects part of the feedstock in the molecule (\Rightarrow trace the atom)
 - We are convinced that this methodology opposite to free attribution will bring more acceptance for combining LCA and mass balance
- \Rightarrow In most cases Covestro offers Sustainable share $\leq 100\%$

MASS BALANCE APPROACH OFFERS BENEFITS - AS FIRST MOVER IN CHEMICAL INDUSTRY CHALLENGES HAVE TO BE MANAGED

Benefits

- **Drop-in** solution for **fast transition** towards EU climate goals
 - ⇒ No additional investment necessary
- **Reduced environmental footprint**
 - ⇒ Climate neutrality* for product on world scale is possible

Challenges

- Implementation of new processes with **high administrative burden** is necessary
- Limited number of raw materials but **huge number of products**
 - ⇒ **Automation tool** needed
- **Monetization** of Mass Balance Concept
- Gather **understanding** and **acceptance** in the **regulated environment** (EPDs, recycling quota of EU etc.)