



Switch to Mass Balance Circular Resins

Need for a global understanding and approval of material equivalency at an industry level to safely achieve a sustainable transition



We develop & manufacture devices that truly improve patients' lives

- **Over 60 patients use our devices every second***
- **Global Sales 2023: ≈ € 600m**
- **International footprint**
7 manufacturing plants in Europe and America
- **Global workforce: over 3000 people**
Strong patient-centric & quality culture
- **Holistic product and services offering to customers**
From early concept innovation to large scale manufacturing, we support your combination product
- **Jointly owned by Astorg and Montagu**



Our holistic offering across major drug delivery routes

Products

Nemera proprietary drug delivery devices

Services

Device Contract Development & Manufacturing
Combination Product Consulting

Ear, Nose, Throat



Ophthalmic



Parenteral



Inhalation



Dermal



Oral, Vaginal, Rectal



Capabilities

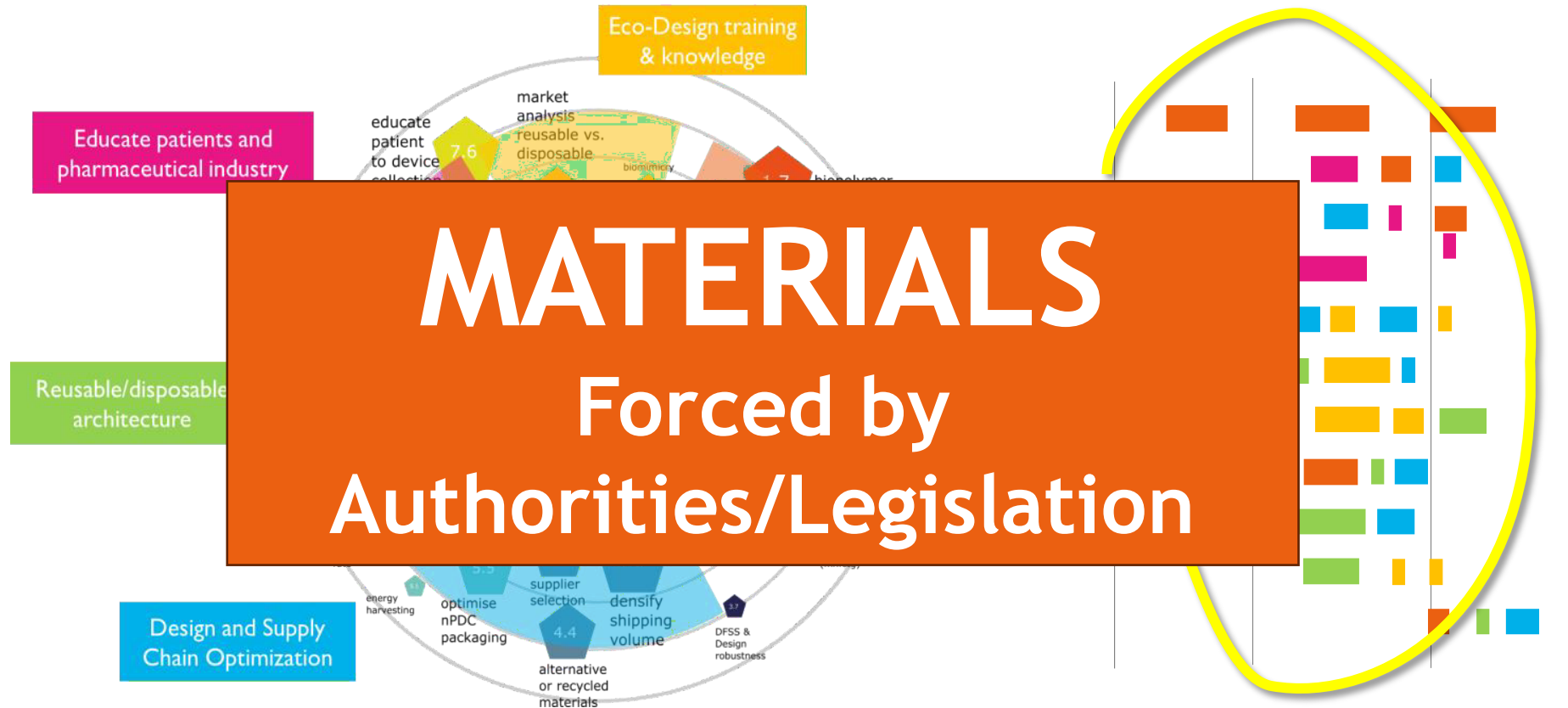
Insight Innovation

Process Engineering and Industrialization

Clinical and Commercial Manufacturing

Strategic sustainability roadmap

Along 5 pillars, we want to **build and populate a sustainability roadmap**, which will hopefully contribute to pay more attention to the world we will leave behind in the pharma eco-system

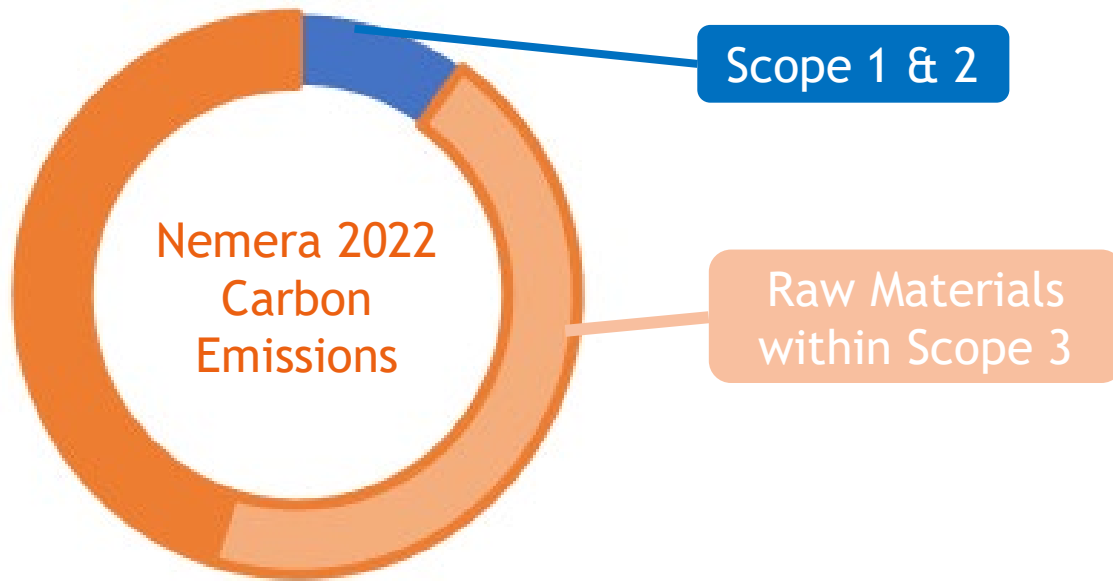


Paris Agreements/Green Deal and Carbon Footprint Reduction



Europe Strategy to become climate neutral by 2050

Nemera committed to a 55% reduction of its indirect carbon emission by 2030



50 % of Nemera Carbon Emissions are directly linked to Plastic Raw Materials

Pending “Packaging Packaging Waste REGULATION” - PPWR

Main Objectives

- Address lacks and failures of PPWD (& Directive vs. Regulation)
- Get out of single use packaging unless necessary
- Reusable as much as possible and mandatory
- **Recycled content mandatory** :
 - To support recycling
 - To achieve domestic waste collection
 - To set value on waste
 - To ensure Member State commitment for implementation

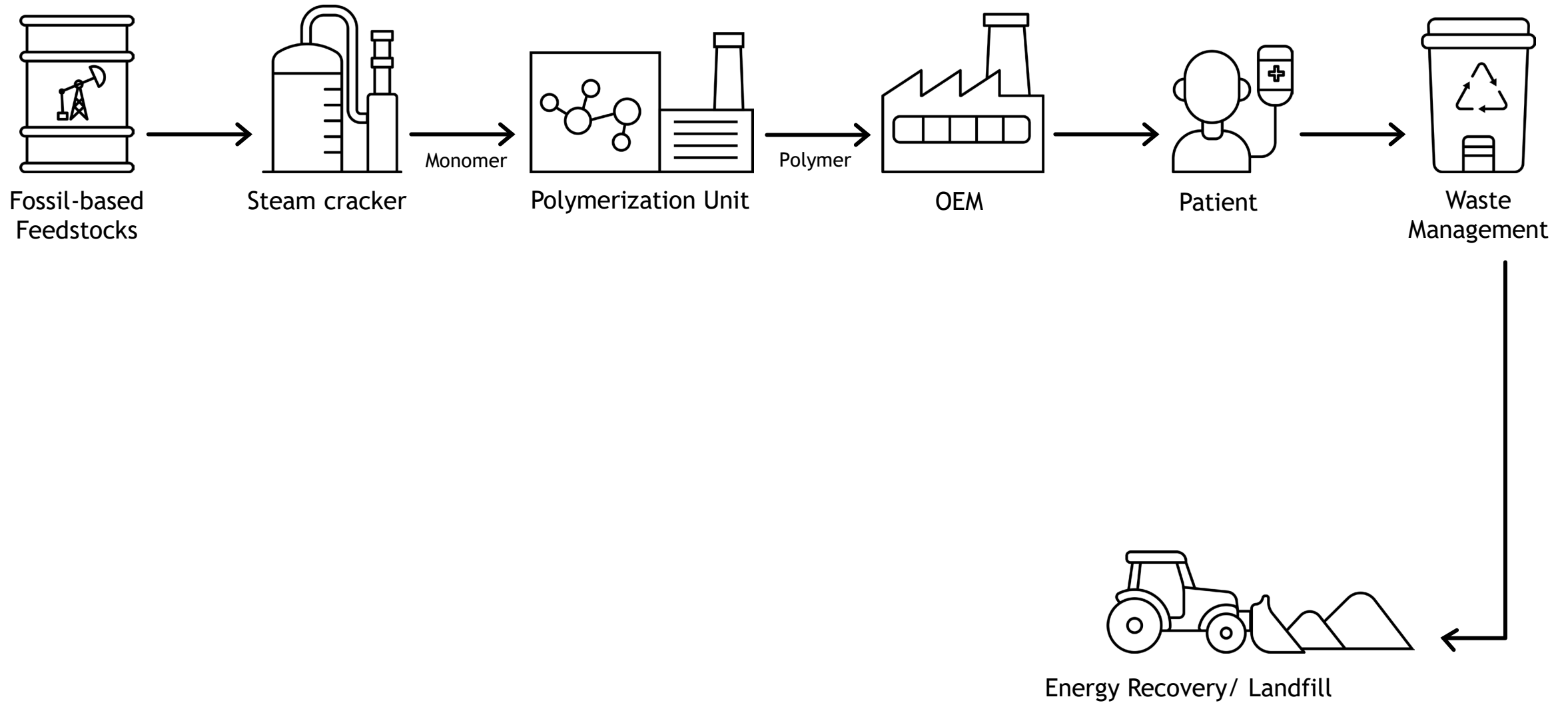
PPWR Proposal

Recycled content targets

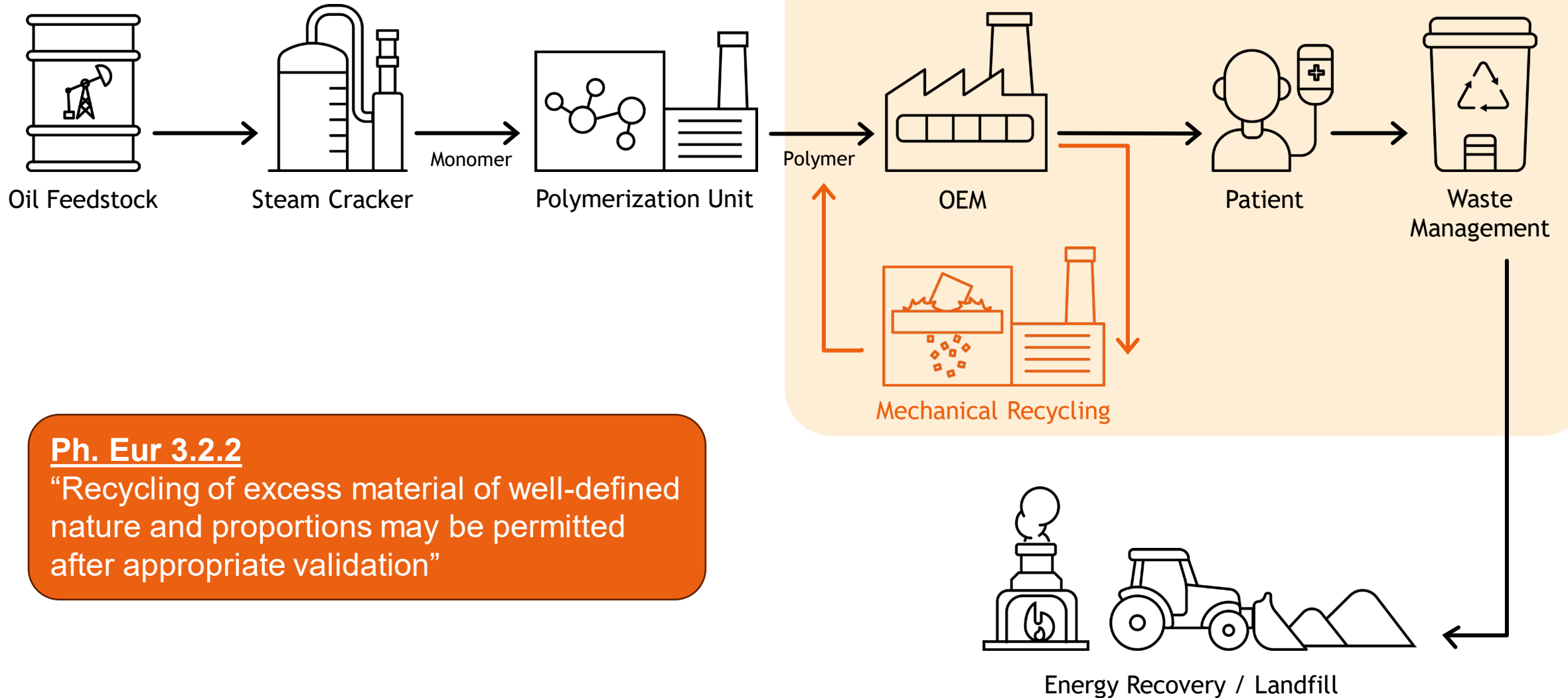
Packaging form	2030	2040
Contact-sensitive packaging made from PET as major component	30%	-
Contact-sensitive, non-PET, excl SUP beverage bottles	10%	-
All contact-sensitive plastic packaging, excl SUP beverage bottles	-	50%
SUP beverage bottles	30%	65%
Other plastic packaging	35%	65%

Medical Devices /
Pharmaceutical Packaging
are described as
“contact-sensitive”

From now ...



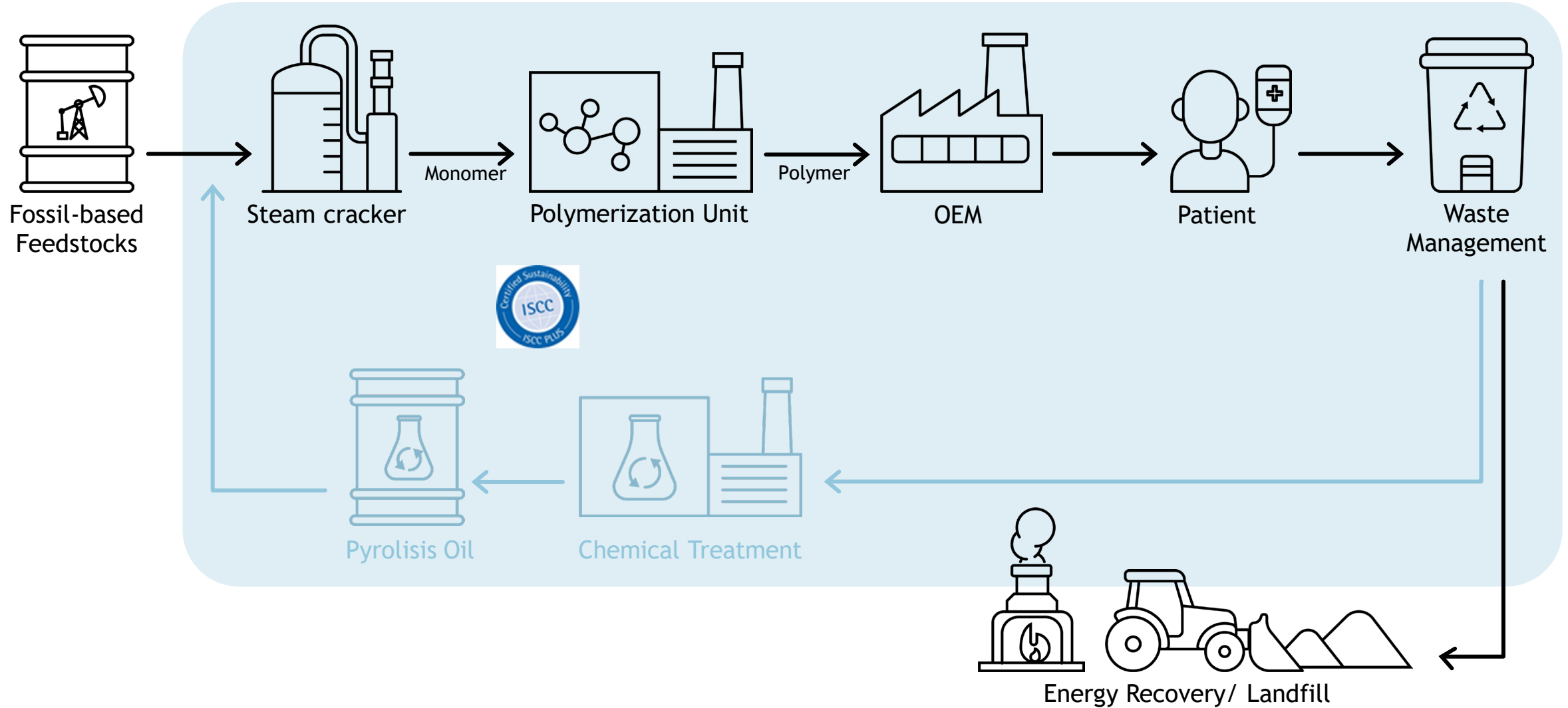
... To circular polymers options : mechanical recycling



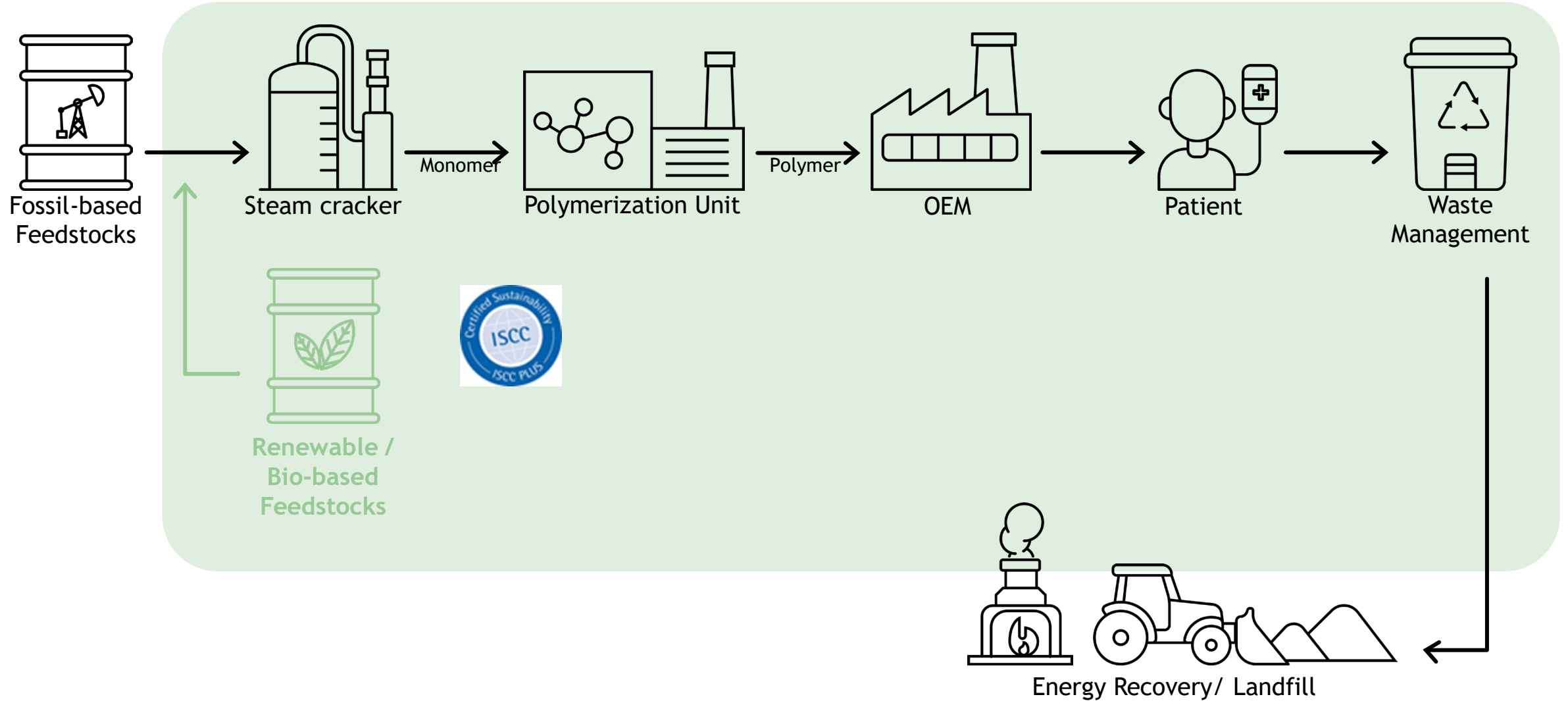
Ph. Eur 3.2.2

“Recycling of excess material of well-defined nature and proportions may be permitted after appropriate validation”

... To circular polymers options : chemical recycling

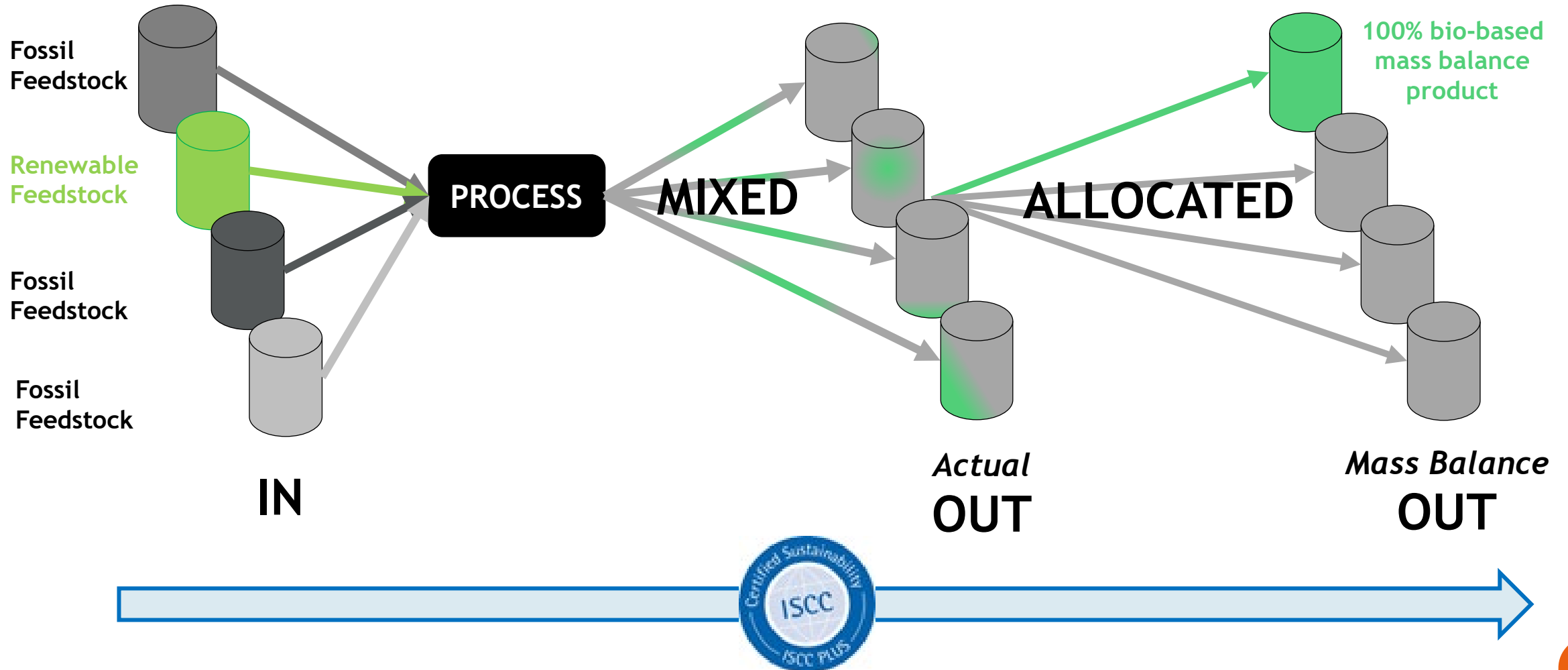


... To circular polymers options : bio-based resins



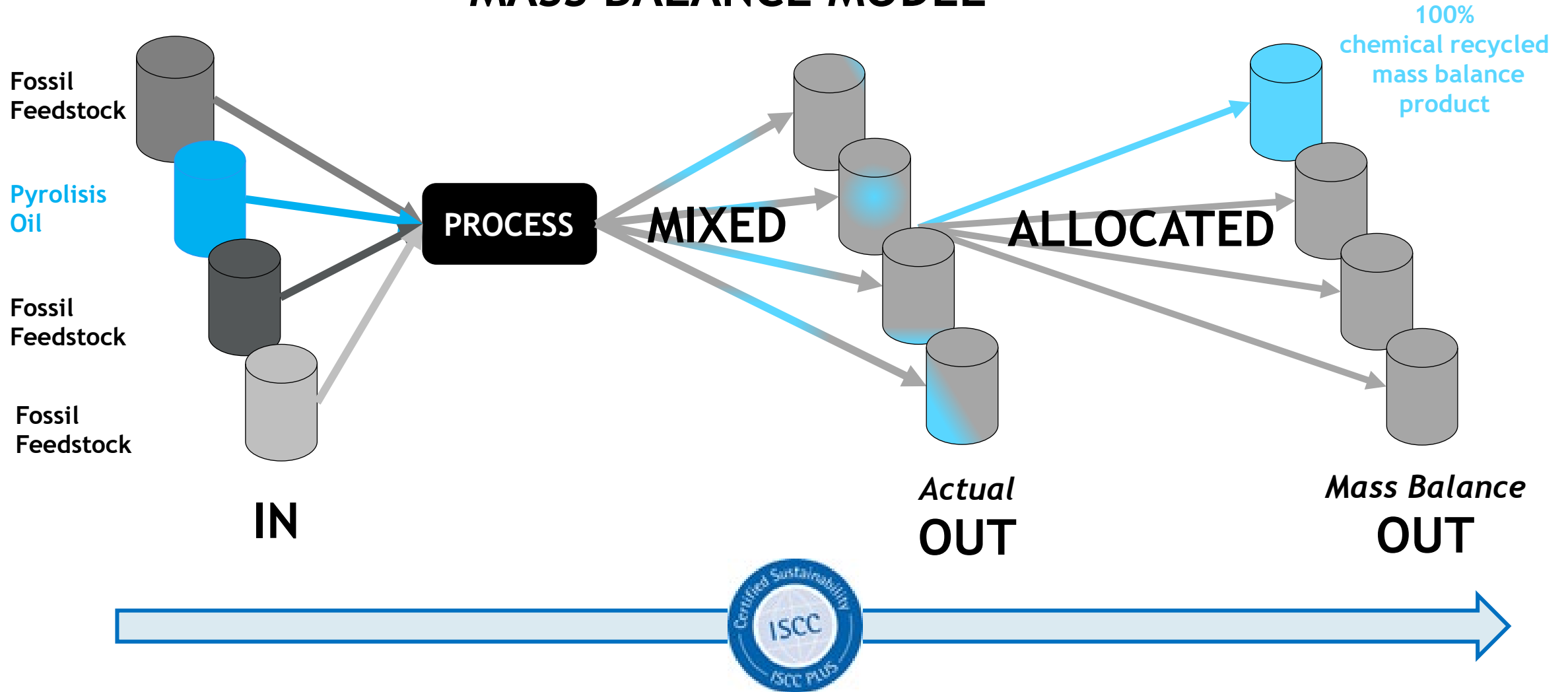
Mass Balance Approach

‘chain of custody’ model consisting in keeping track of the total amount of input (e. g. sustainable feedstock) throughout the production cycle and ensure an appropriate allocation to the finished goods.



Mass Balance with chemically recycled feedstocks

MASS BALANCE MODEL



Claimed “DROP-IN SOLUTIONS” - Suppliers Verbatim

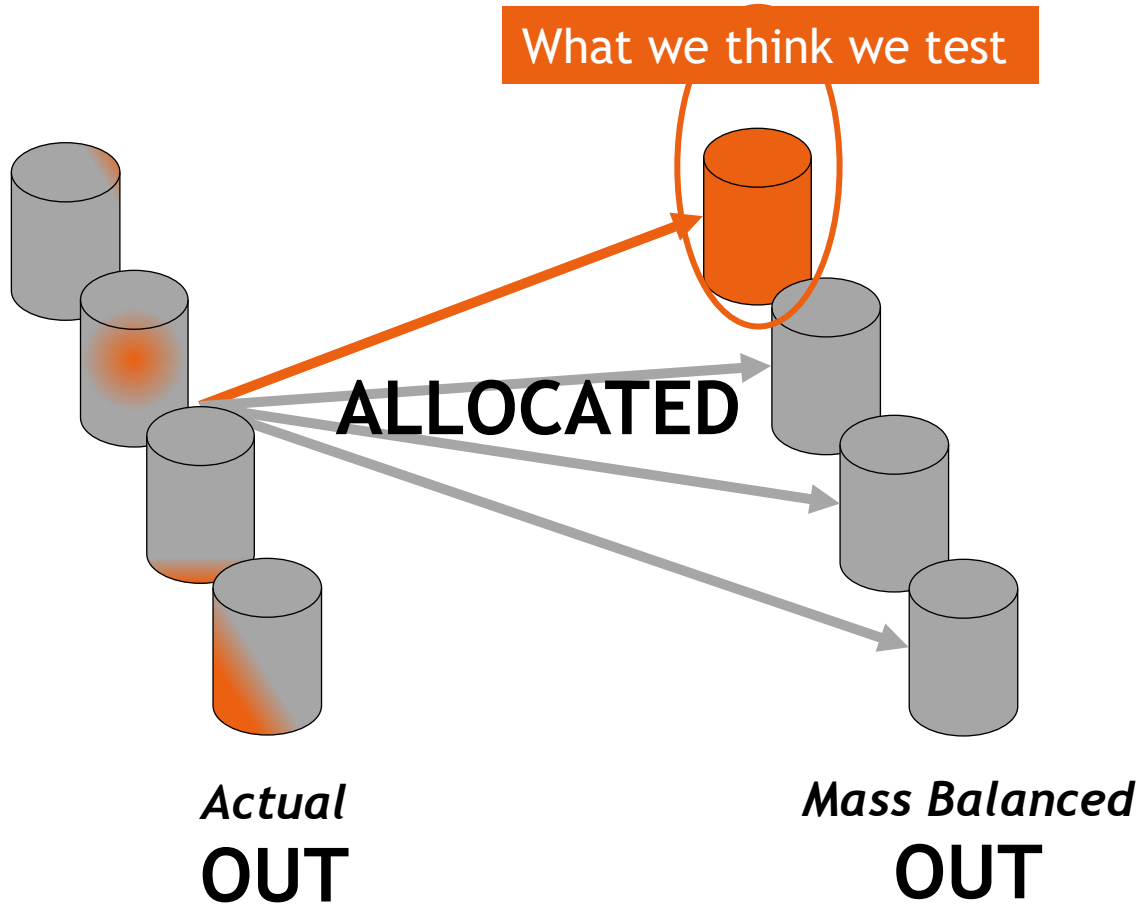
Because of the mass-balance approach, **BIO grades are chemically identical to the FOSSIL versions of the same grade**. Both BIO and FOSSIL materials are produced with the same specifications on the same equipment. Both materials are identical in the following respects: ingredients and their percentages, suppliers of raw material ingredients and site & process method of manufacture. In addition, the non-fossil-based feedstocks are purchased to the same quality specification and undergo the same qualification process as fossil-based raw material sources and are often mass-balance products as well. **The material specification, quality and performance of our BIO grades are equivalent to our traditional fossil-based FOSSIL grades.**

The **quality, purity and performance characteristics of certified CIRCULAR and BIO** polymers produced by making use of circular or renewable feedstocks are **identical** to the quality, purity and performance characteristics of polymers produced using conventional fossil-based cracker feedstock.

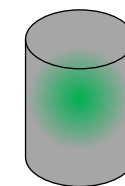
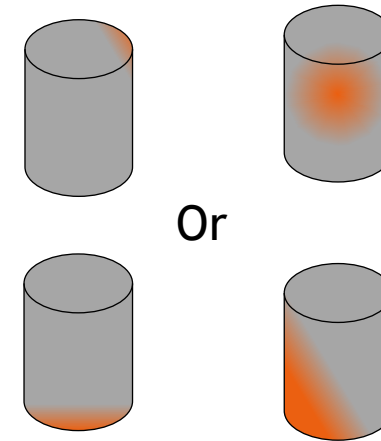
Product(s) sold with a Sustainability Certificate and their corresponding fossil-based polyolefin products are produced under **the same production process, according to the same product recipe and specifications** [...] Therefore, Product(s) sold with a Sustainability Certificate **share the same technical data sheets and other product information** with the corresponding fossil-based polymer...

While requesting supplier's support in getting more scientific evidence,
Nemera is getting organized for testing devices

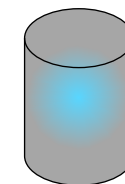
A challenge for downstream testing



What we actually test



For biobased resin there is a possibility to confirm biogenic carbon presence by C14 technics.

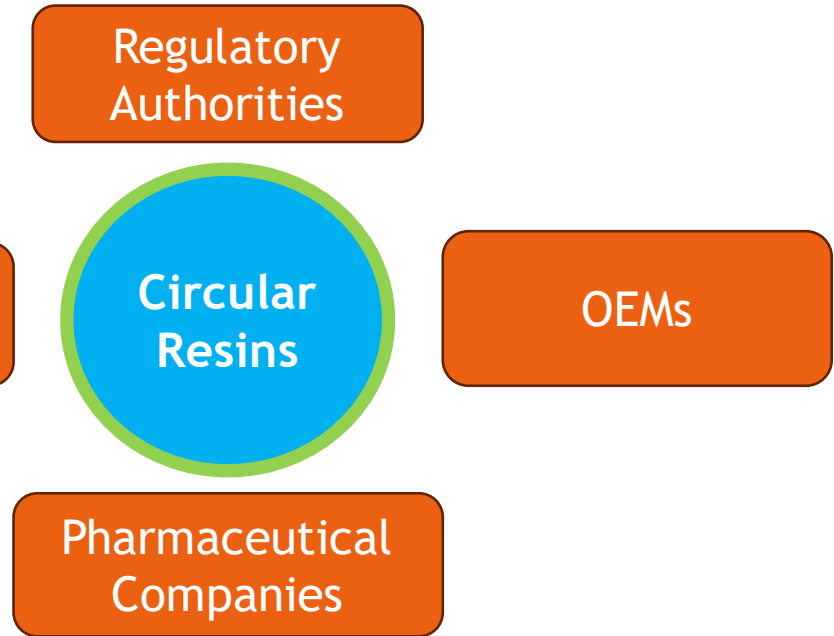


No possible differentiation with chemical recycling.

Address the challenges at an industry level ?

Circular resins are a first example of the changes taking shape and requiring a global understanding and approval.

How can we join our effort to ...



... close the loop and safely support the transition towards a more sustainable industry ?

Thank You !

