

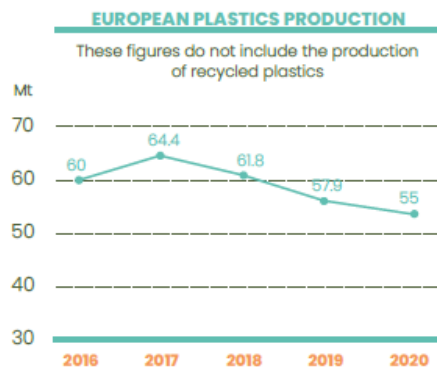
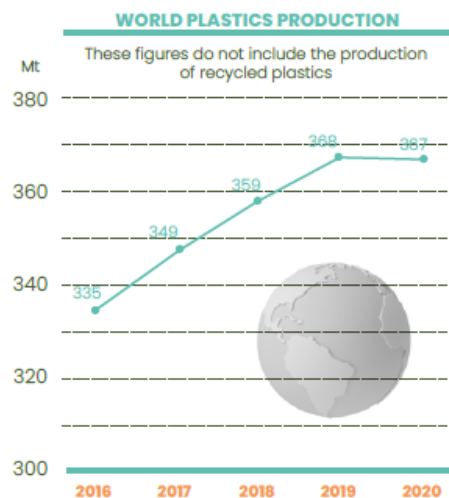


# Plastics Europe's Circular Economy study (2018 data)

Charlotte Delvaux

@LIFE PlastPLUS event (01/02/2022)

## WORLD AND EUROPEAN plastics production evolution



Includes Thermoplastics, Polyurethanes, Thermosets, Elastomers, Adhesives, Coatings and Sealants and PP-Fibers. Not included PET-, PA- and Polyacryl-Fibers.  
 SOURCE: Plastics Europe Market Research Group (PEMRG) and Conversio Market & Strategy GmbH. Estimated data.

## DISTRIBUTION of the global plastics production

<b>CHINA</b>	32%
<b>NAFTA*</b>	19%
<b>REST OF ASIA</b>	17%
<b>EUROPE</b>	15%
<b>MIDDLE EAST, AFRICA</b>	7%
<b>LATIN AMERICA</b>	4%
<b>JAPAN</b>	3%
<b>CIS**</b>	3%

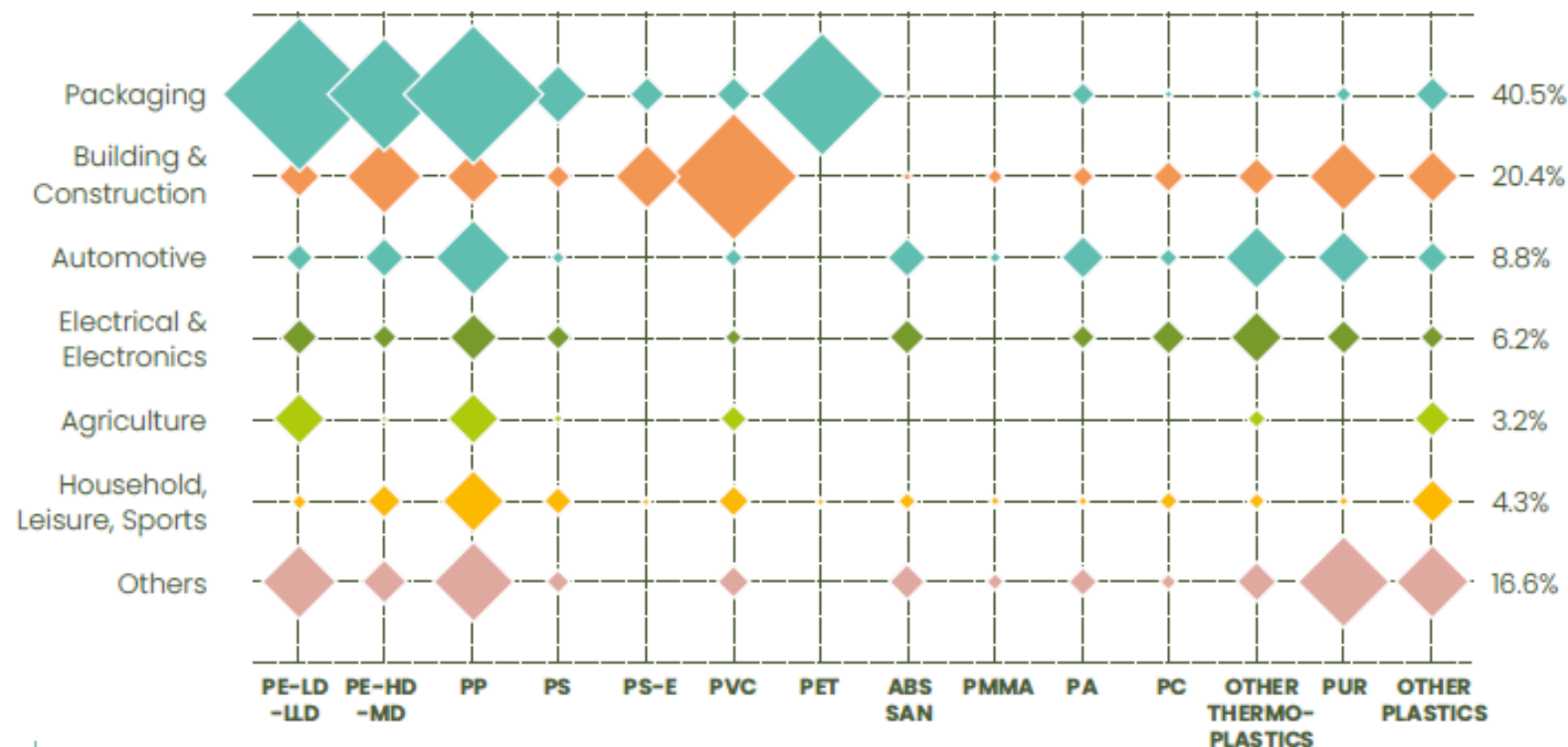
367 Mt\*\*\*

\* North American Free Trade Agreement.  
 \*\* Commonwealth of Independent States.  
 \*\*\* Includes Thermosets, Elastomers, Adhesives, Coatings and Sealants and PP-Fibers. Not included PET-, PA- and Polyacryl-Fibers.  
 SOURCE: Plastics Europe Market Research Group (PEMRG) and Conversio Market & Strategy GmbH. Estimated data.



**Total:  
49.1 Mt**

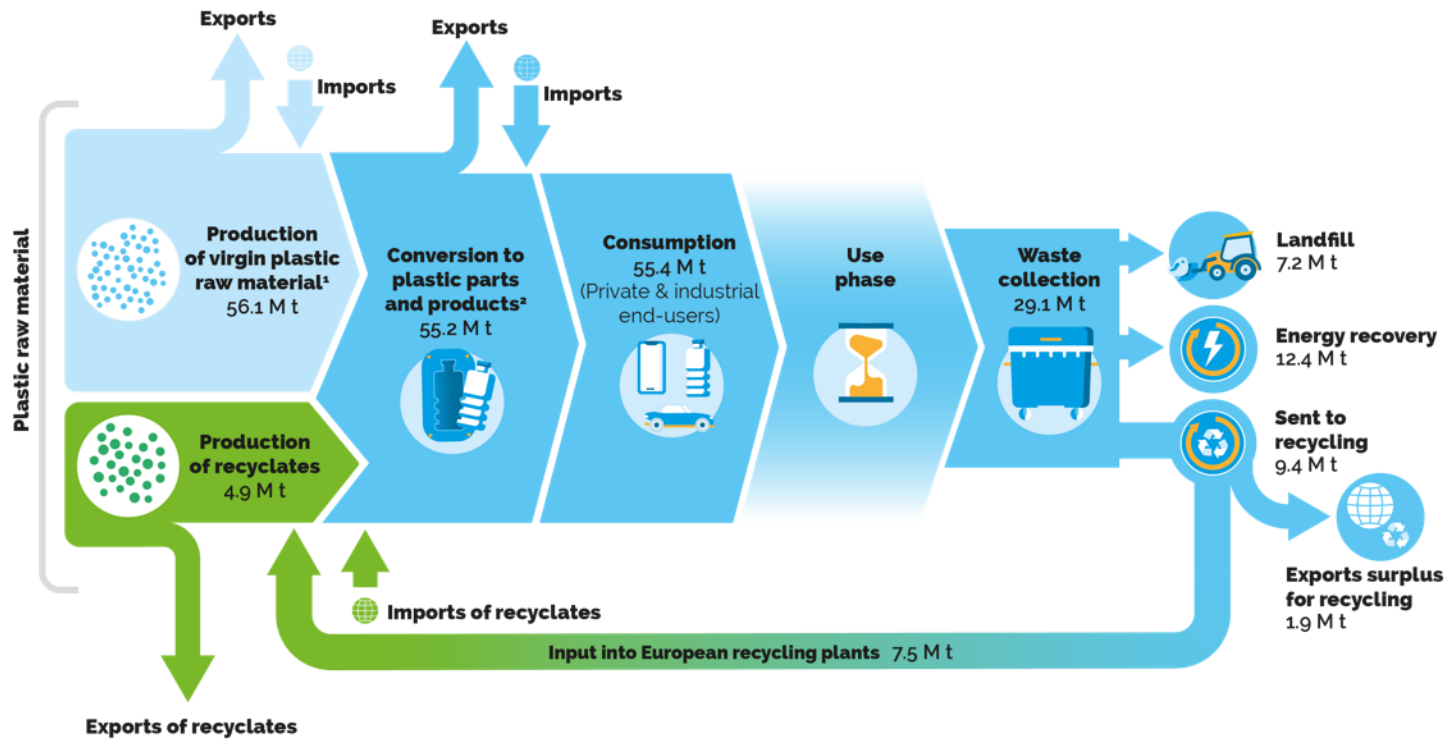
## EU27+3 converters plastics demand **BY SEGMENTS & POLYMER 2020**



SOURCE: Plastics Europe Market Research Group (PEMRG) and Conversio Market & Strategy GmbH.  
Demand estimations do not include recycled plastics.  
Numbers behind this graph are available upon request.

# UNDERSTANDING THE LIFE CYCLE OF PLASTICS

**60% of plastic products and products containing plastics have a use phase that ranges from 1 to over 50 years and take that long to become waste.**



Plastics are used to produce products (e.g. a bottle, a pipe, a chair, etc.) or to produce parts for larger products (components and parts in vehicles and planes, insulation for houses, shoe soles, etc.). The former are called “plastic products” and the latter are called “products containing plastics”.

The use phase of plastic products or products containing plastics depends on their application, ranging from approximately less than one year to fifty years (e.g. beverage bottles, phones, car parts, insulation for homes and buildings,...). This explains why waste volumes for a given year (here 2018) are considerably smaller than the total manufactured plastic products and parts put on the market for the same year. Their longevity (use phase) is precisely what makes plastics so attractive in terms of delivering more value, sustainability and resource efficiency.

Above data were rounded

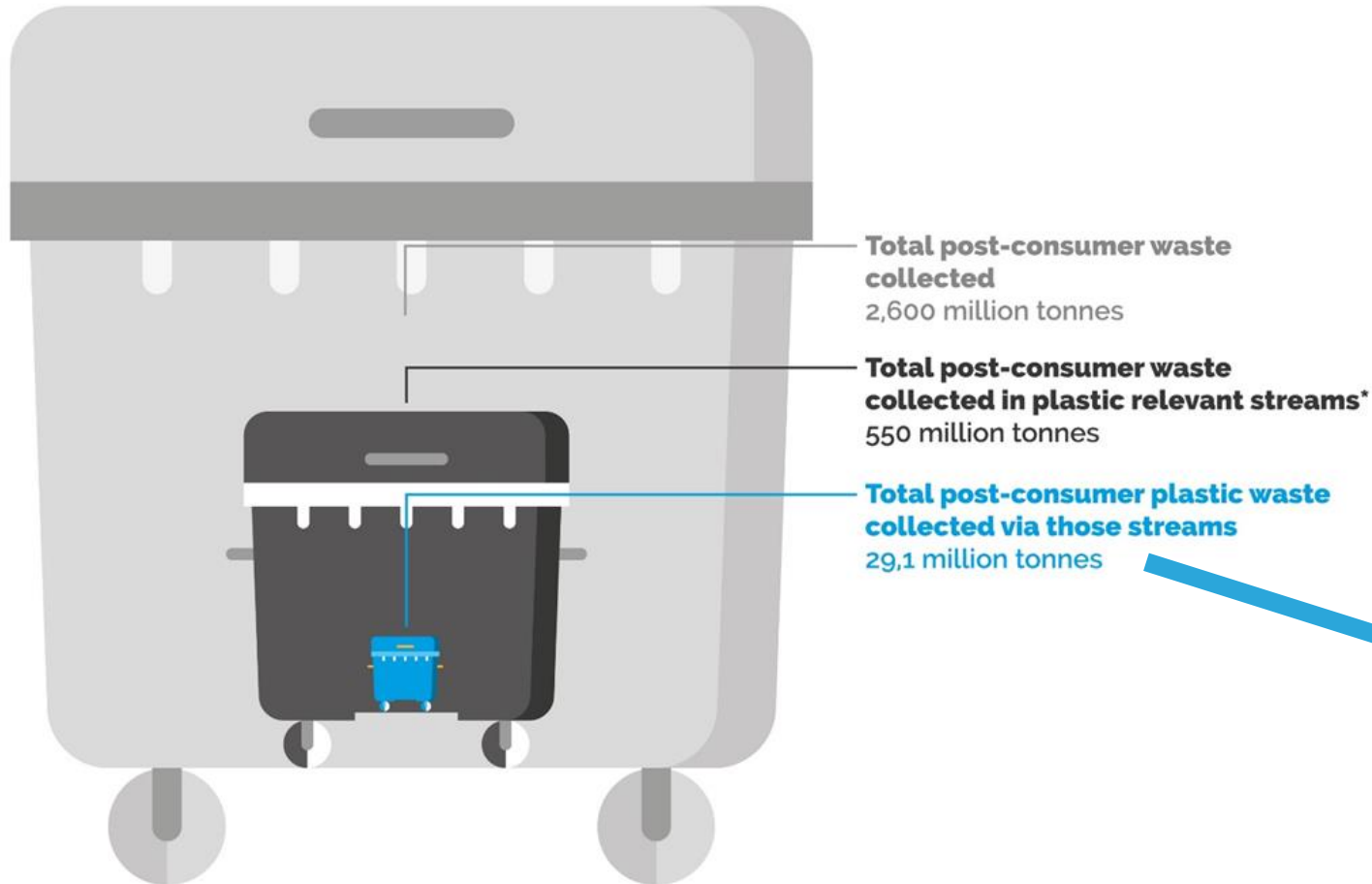
The present document focuses only on recyclates from post-consumer plastic waste; therefore no figures are shown individually for post-industrial plastic waste

1. Virgin materials plus post-industrial recyclates

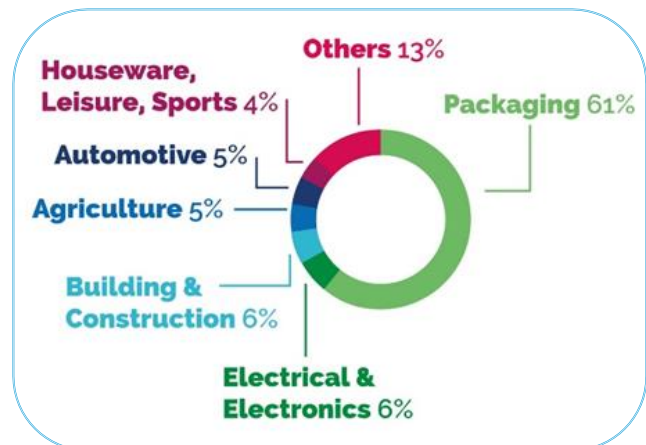
2. Thereof 51.2 M t virgin material and 3.98 M t recyclates from post-consumer plastic waste

# PLASTICS: A SMALL SHARE OF POST-CONSUMER WASTE

Plastics account for **1%** of all EU28+2 **post-consumer waste**



From the total amount of waste produced in 2018, the current study examined all plastic-relevant streams of post-consumer waste (i.e. waste streams that contain plastics as an essential component) and found that the figure for post-consumer plastic waste collected annually from such streams stands at 29 million tonnes per year (1% of EU28+2 post-consumer waste).



Above data were rounded

\*Plastic relevant streams are waste streams that contain plastics as a relevant component, mixed with other types of waste (e.g. household residual waste, WEEE, etc.)

# WHY IS SEPARATE COLLECTION KEY FOR RECYCLING?



Plastic waste recycling rates are **10 X HIGHER** when collected separately compared to mixed collection schemes.

More than half of all post-consumer plastic waste is collected via different mixed waste collection schemes in which the share of plastics ranges from 2 to 8%.

Most recycled plastics come from waste that is collected separately at home or in commercial activities. Consumers therefore play an important part in the effort to recycle more plastics.

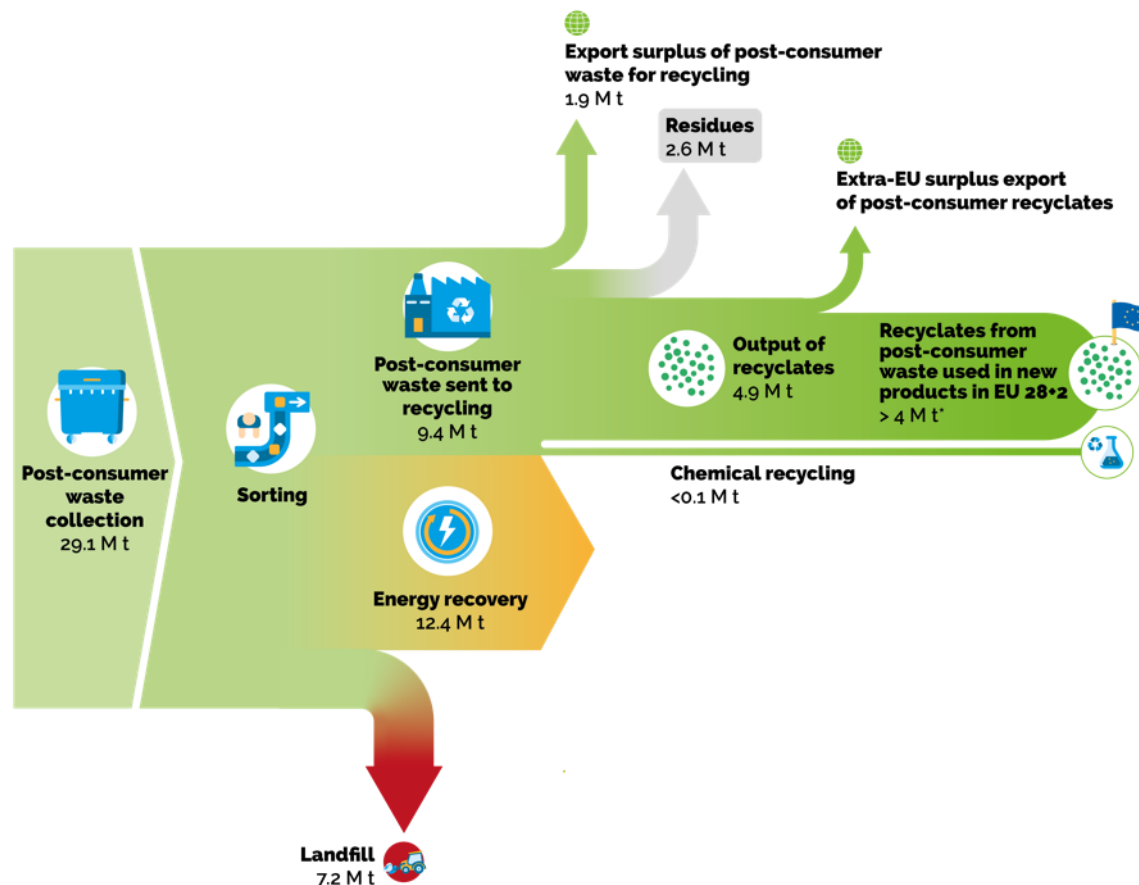
Above data were rounded

\* Waste collection in which end-users do not sort the different types of waste (e.g. household residual waste and municipal waste)

\*\* Waste collection in which end-users sort the different types of waste (e.g. household lightweight packaging, WEEE collection, container parks)

# WHAT IS THE OUTPUT OF RECYCLATES FROM THE RECYCLING PROCESS?

More than 9 million tonnes of post-consumer plastic waste were sent to recycling. Almost 80% was treated in Europe to produce about **5 million tonnes of recyclates**.



## From waste to recyclates: understanding the gap

Firstly, part of the collected post-consumer waste is sent to recycling outside Europe. The rest is processed in European recycling facilities.

Furthermore, in all industrial processes, output quantity is smaller than input quantity due to impurities and residues. The analogy is often made to peeling and coring the apple before baking an apple pie.

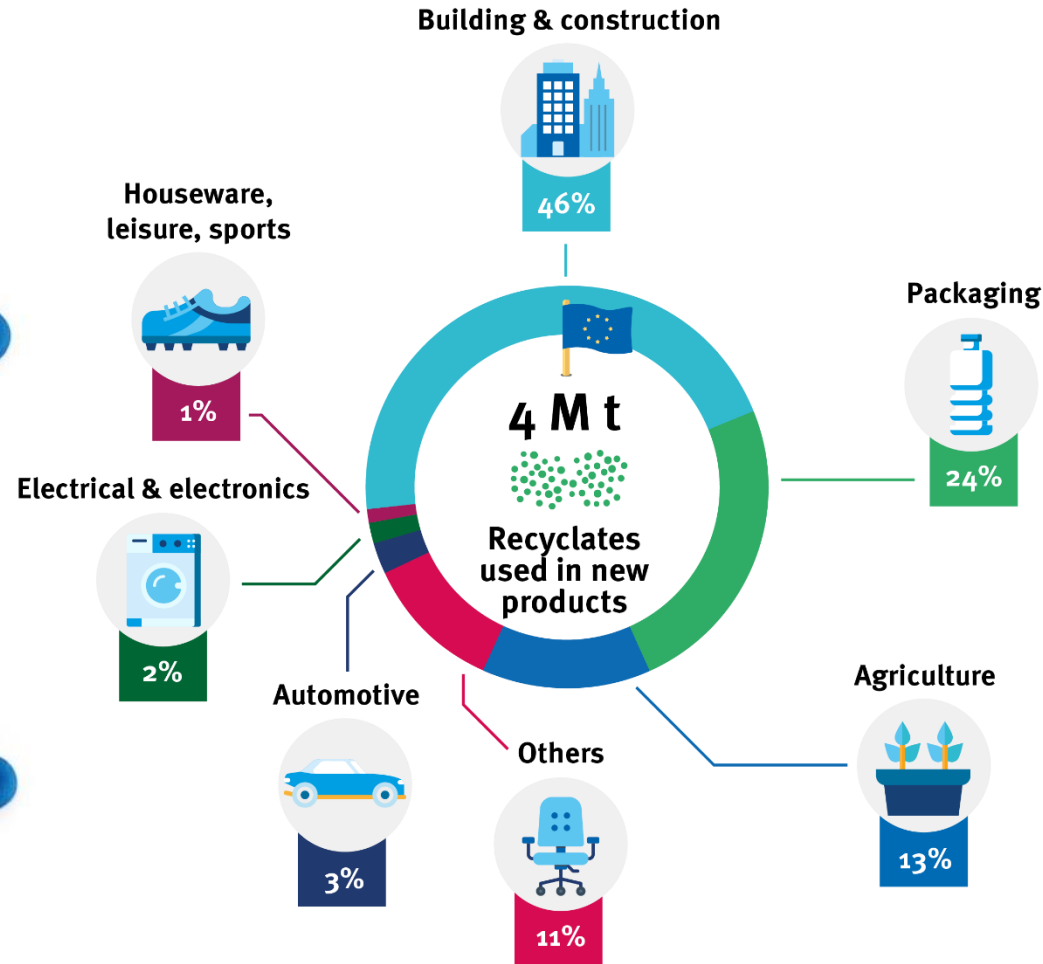
Some examples of impurities and residues are moisture, organics (e.g. water, milk, yoghurt), textiles, composites, paper, adhesive, metals and plastic residues discarded from the recycling process (e.g. foils).

Better waste collection schemes and sorting techniques, combined with enhanced eco-design and innovation can help increase the efficiency of recycling processes and minimise these residues.

Above data were rounded

\* This study estimates at least 4 M t of recyclates, from post-consumer waste, used in new products in 2018 in EU28+2. No exact data can be given for the extra-EU surplus of post-consumer recyclates since there is only limited information available

# WHERE ARE PLASTIC RECYCLATES USED TODAY?



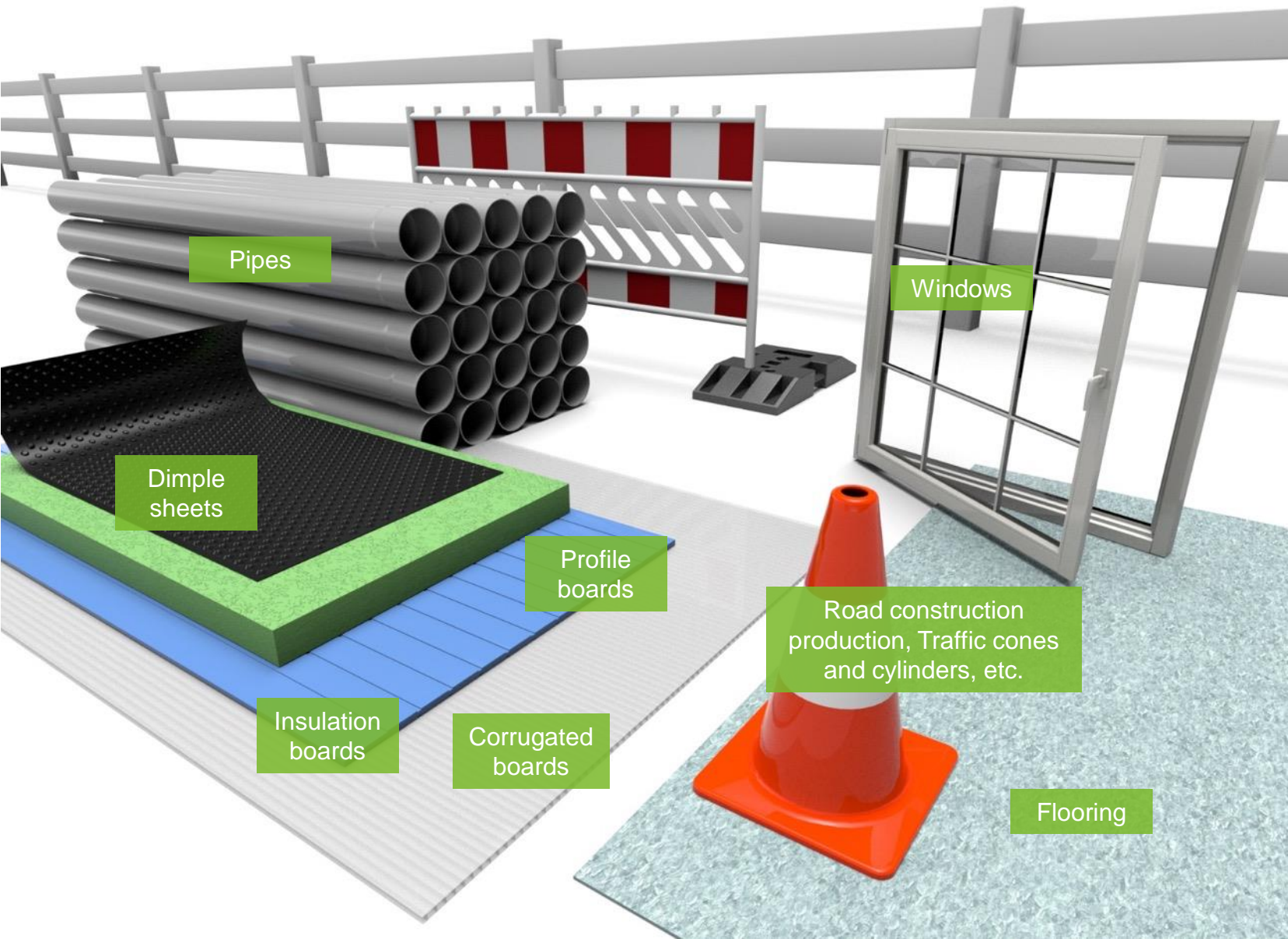
Depending on their quality, recyclates can be used in various applications. A closed loop recycling system (e.g. bottle to bottle) is not always possible, particularly in high performance applications where the highest quality is needed to meet product specifications and regulatory requirements.

Currently, recyclates are used mostly in building and construction, packaging and agriculture. With the help of innovative recycling and sorting technologies, the quality of recyclates will increase, and so will the range of applications in which they can be used.

Above data were rounded  
Recyclates from post-consumer waste only



# RECYCLED PLASTICS EVERYWHERE



46% of recyclates in the EU28+2 are used in **BUILDING AND CONSTRUCTION APPLICATIONS** that require high-performance and durable products.

The **longer the life span** of a product, the **greater its contribution** to resource efficiency and circularity.

# RECYCLED PLASTICS EVERYWHERE



24% of recyclates are used in common household and industrial **PACKAGING PRODUCTS AND APPLICATIONS**. This figure may increase when food contact material regulations are adapted to the circular economy, and if a larger variety of recyclates meets the product specifications.

\*Intermediate bulk container

# RECYCLED PLASTICS EVERYWHERE



17% of recyclates are used in **AUTOMOTIVE**, **ELECTRICAL & ELECTRONICS** and in a wide range of **OTHER PRODUCTS**.

# RECYCLED PLASTICS EVERYWHERE



Raised Beds

Composters

Rain barrels

Irrigation pipes

Flower tubes, flower pots and bowls, hanging baskets, etc.

Hoses

Cultivation pallets

13% of recyclates in the EU28+2 are used in **AGRICULTURE AND GARDENING APPLICATIONS**, ranging from compost bins and rain barrels to irrigation pipes.

# WHAT PROPORTION OF RECYCLATES IS CONTAINED IN PRODUCTS FROM THE MAJOR MARKET SECTORS?



Applications in **agriculture** lead other sectors by ratio of **recyclates** to virgin raw material used in plastic products and parts.

Although building and construction uses more recyclates than any other market sector, it is agricultural plastics that contain the highest proportion of recyclates of any product or part.

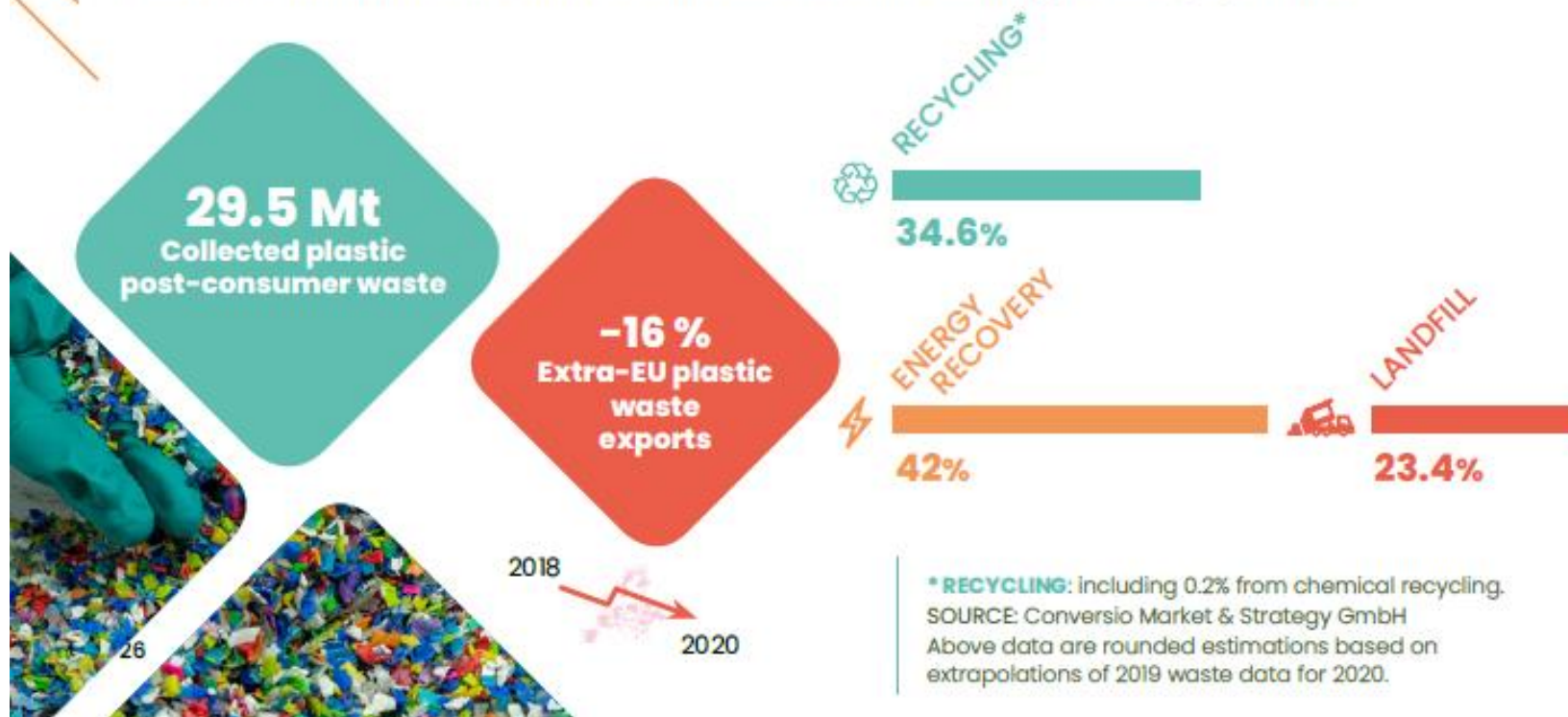
Above charts show the importance of the different sectors in terms of their general use of plastics raw materials, combined with the proportion of recyclates they use. Above data were rounded. Recyclates from post-consumer waste only

## POST-CONSUMER PLASTIC WASTE

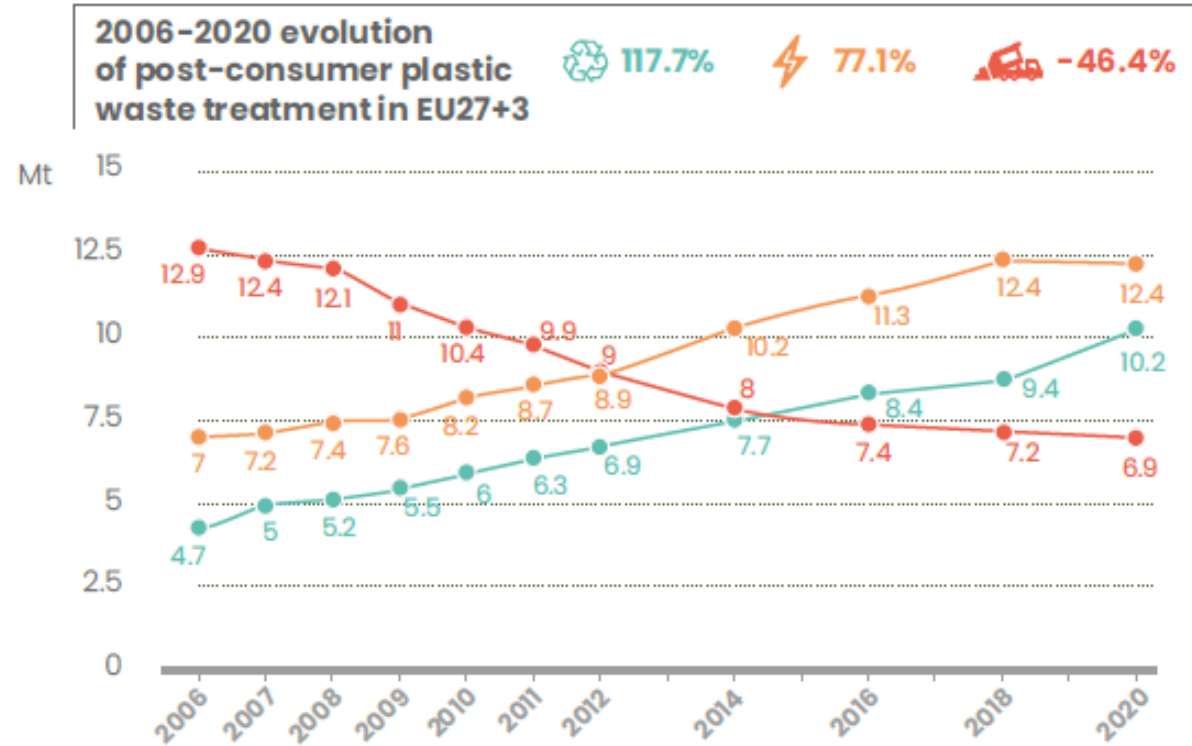
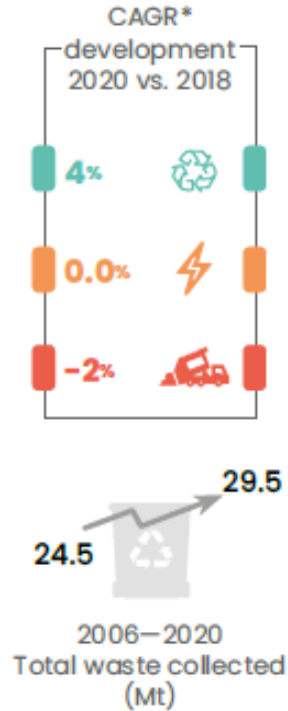
treatment in 2020 (preliminary data)

In 2020, more than 29 million tonnes of plastic post-consumer waste were collected in the EU27+3. Because plastics products have different life span (ranging from 1 to 50 years or more), of post-consumer plastic waste collection figures do not match demand or consumption figures.

More than **one third** was sent to recycling facilities inside and outside the EU27+3 but over 23% was still sent to landfill and more than 40% was sent to energy recovery operations.



## PLASTIC POST-CONSUMER WASTE treatment in 2020 (preliminary data)



\* CAGR: Compound Annual Growth Rate is the mean annual growth rate over a specific period of time.  
 SOURCE: Conversio Market & Strategy GmbH.  
 Above data are rounded estimations based on extrapolations of 2019 waste data for 2020.

# Plastics Europe's vision for the future

- Plastics Europe is fully committed to supporting the EU Green Deal's ambitions and the Circular Plastics Alliance (CPA) of the EU Commission
- The industry needs to accelerate the plastics circular economy & plastics manufacturers have started the journey with their value chain partners to:
  - Manufacture products enabling reuse and repairability, and improving recycling
  - Increase sorting and recycling capacities => key to improve recyclates' quality and increase the recycling output quantity
  - Foster the uptake of recycled plastics into new products
- Plastics Europe members announce a significant increase in planned chemical recycling investment: from 2.6 billion Euros in 2025 to 7.2 billion Euros in 2030.
- To foster the uptake of recycled plastics into new products: European plastics producers support the European Commission's proposal for a mandatory EU recycled content target for plastics packaging, and are calling for a target of 30% for plastics packaging by 2030.



Check Plastics Europe  
members' case studies  
=> [here](#)





*Plastics Europe wants to be a catalyst of change, and collaborate with its value chain partners to reach the common industry targets*

