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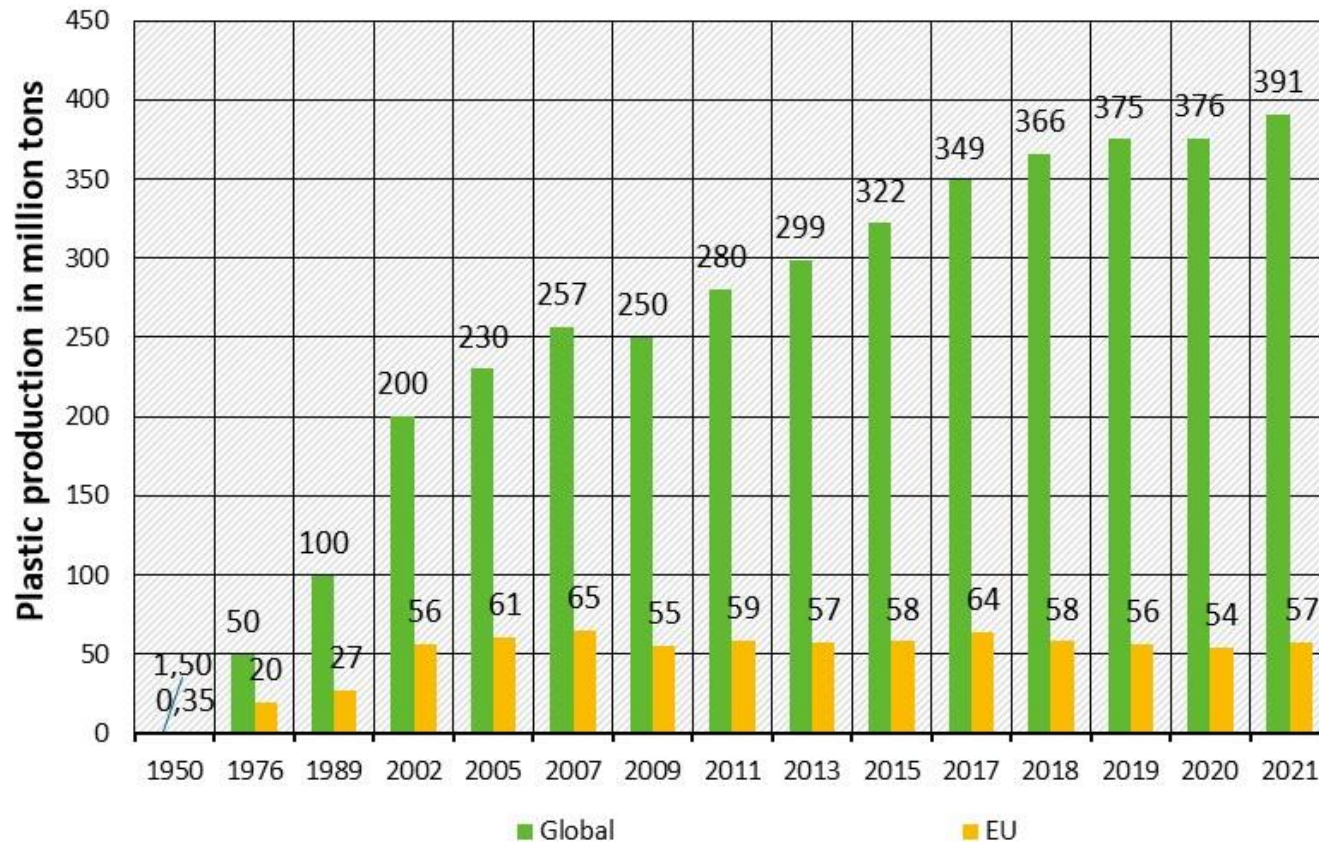
PlastTalk: Circular economy of plastics – where do we stand and how to go forward?

# State of the Circular Economy of plastics in Germany

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# Global and European plastic consumption and waste generation

Global and European Plastic Production from 1950 to 2021



Per capita waste generation differs strongly across the world:

Plastic waste in kg/capita in 2019

- USA 220.5
- Canada 177.9
- EU 121.6
- OECD Asia 68.9
- Other OECD America 57.9
- China 46.6
- Non-OECD Middle East and North Africa 37.6
- Non-OECD other Africa 14.5
- India 14.0

Source: OECD Global Plastics Outlook Database. 2022

Source: Illustration of the author based on <https://de.statista.com/statistik/daten/studie/167099/umfrage/weltproduktion-von-kunststoff-seit-1950/>

## Plastic production, processing and consumption in Germany 2023

- Plastics production based on fossil raw materials in Germany fell from 10.70 million metric tons in 2021 to 8.82 million metric tons in 2023. This was due, among other things, to declining demand from the processing industry in Germany (e.g., in the packaging and construction sectors) and the relocation of production capacity abroad.
- In 2023, plastics processing, including the use of recycled materials and the reuse of byproducts, totaled 12.85 million tons (2021: 14.04 million tons), representing an overall percentage decline of - 8.5%.
- A decline in overall plastics processing is also reflected in plastics consumption. After adjusting for import and export volumes of plastic products, plastic consumption in Germany amounted to 11.25 million tons. Compared to 2021, the volume of plastic consumption decreased by 1.11 million tons, or 9.3%. Plastic consumption increased only in the automotive and medical sectors.
- The use of fossil raw materials in processing declined overall (-11.4% compared to 2021). This is attributable, on the one hand, to the overall decline in processing, and on the other hand, to the increased use of recycled materials to ~1.93 million tons in 2023 (increase compared to 2021 by 17.2 %).

Source: Federal Environment Agency 2025, compiled by the author using data from CONVERSIO Market & Strategy GmbH – [Material Flow Analysis of Plastics in Germany 2023](#)

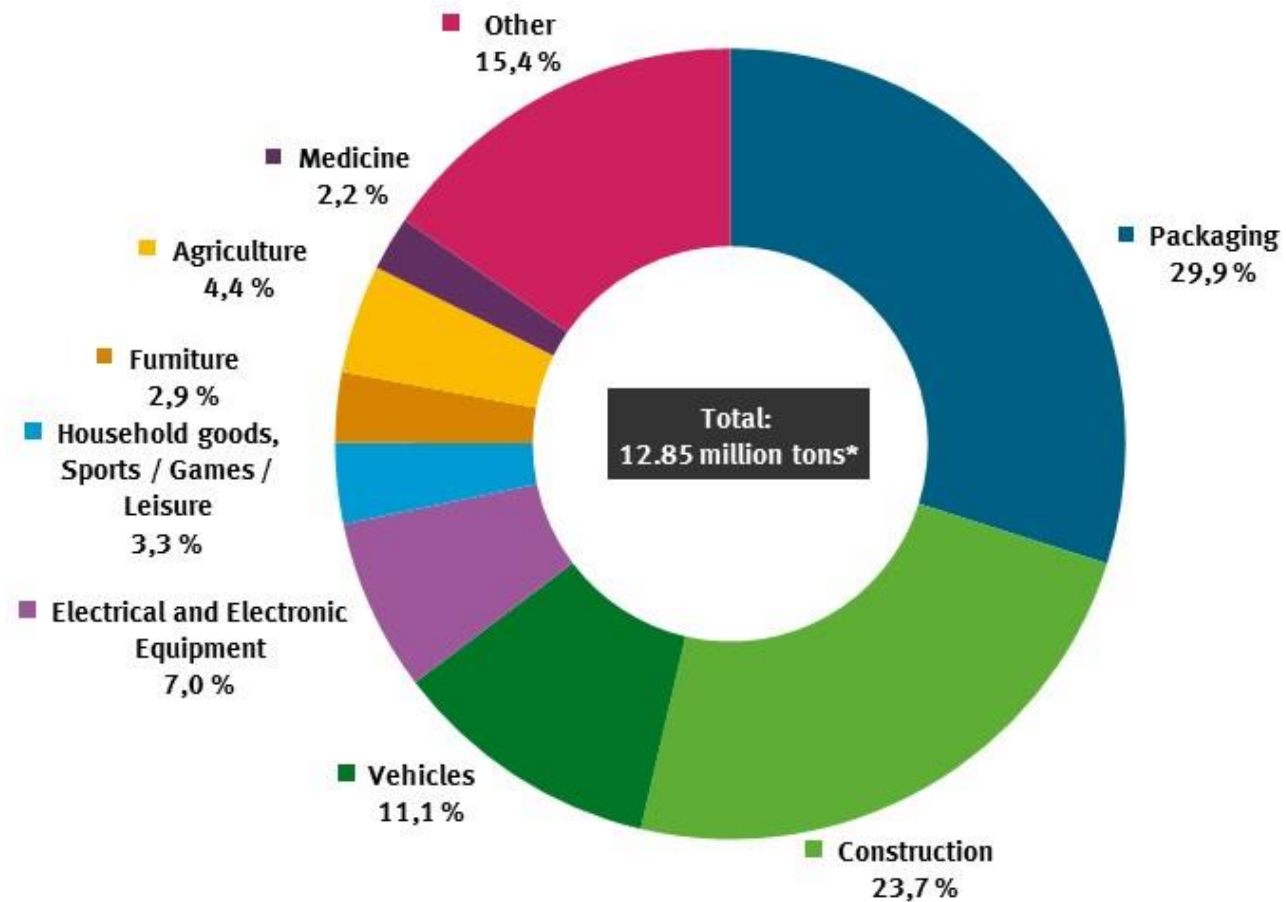
Plastic Production 2023  
8.82 Mio. t  
- 17.6 % compared to 2021

Plastic Processing 2023  
12.85 Mio t  
- 8.5% compared to 2021

Plastic Processing: 10.42 Mio. t primary  
plastics + 1.93 Mio. t recyclate +  
0.5 Mio. t by-products  
(-11.4 % fossil based)

Plastic Consumption  
11.25 Mio t  
- 9.3 %

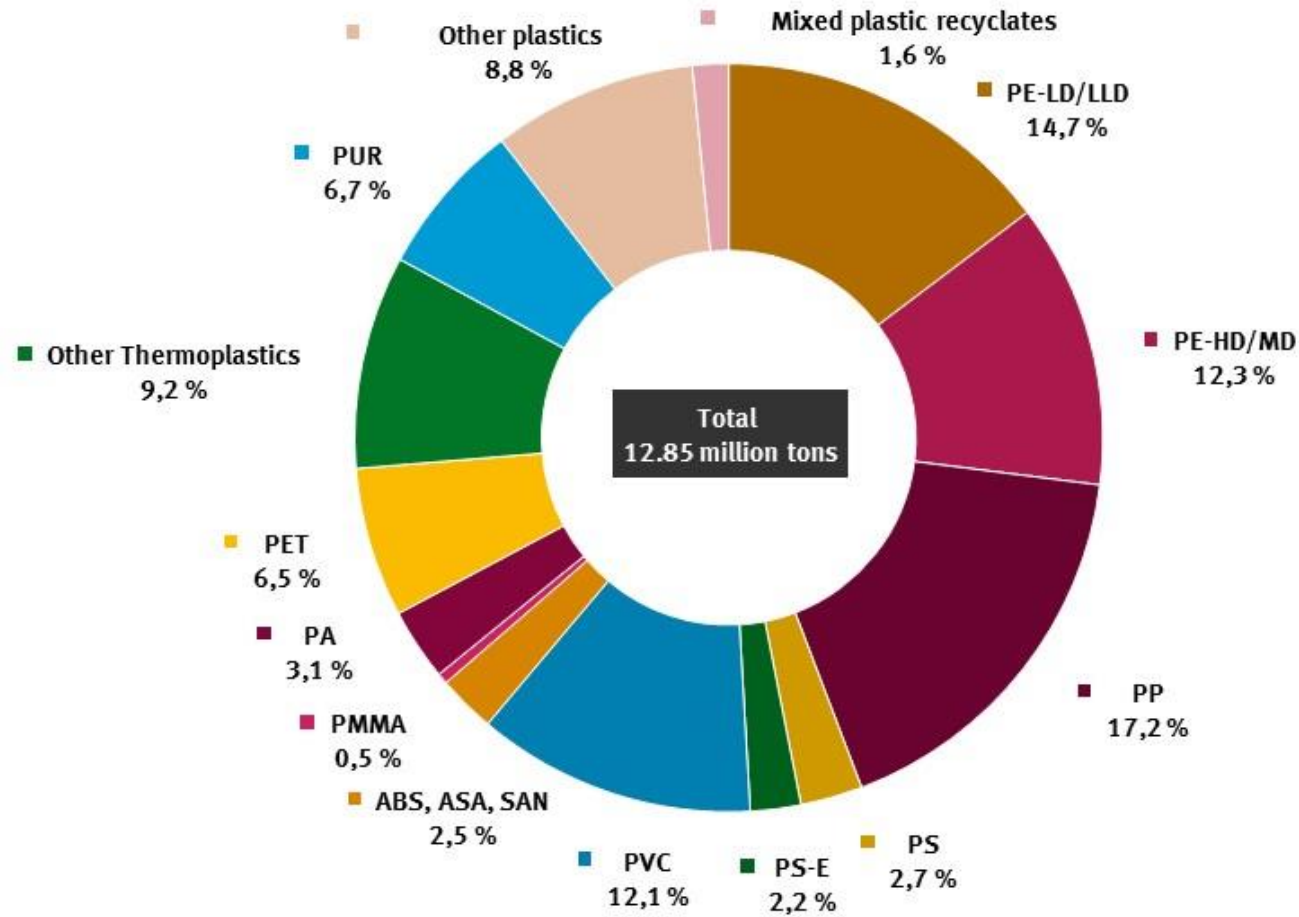
## Share of relevant sectors in Germany in the total volume of plastics processed in 2023



\*Including virgin materials (fossil-based and small amounts of bio-based), recycled materials, and the reuse of byproducts

Source: Federal Environment Agency 2025, compiled by the author using data from CONVERSIO Market & Strategy GmbH – Material Flow Analysis of Plastics in Germany 2023

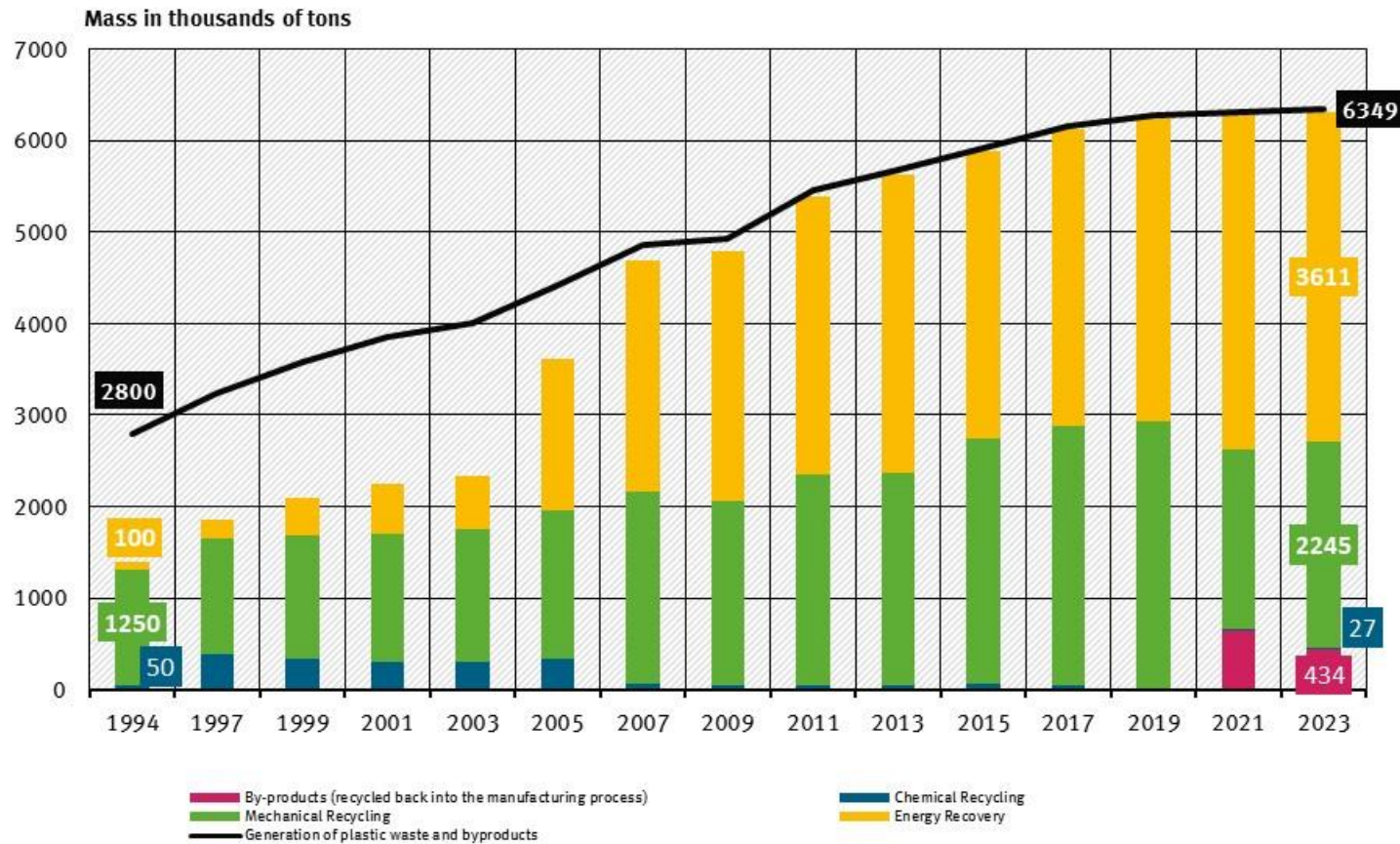
Proportion of plastic types in the total volume of plastics processed in 2023 (virgin and recycled material)



Source: Federal Environment Agency 2025, compiled by the author using data from CONVERSIO Market & Strategy GmbH – Material Flow Analysis of Plastics in Germany 2023

# Treatment of Plastic Waste in Germany

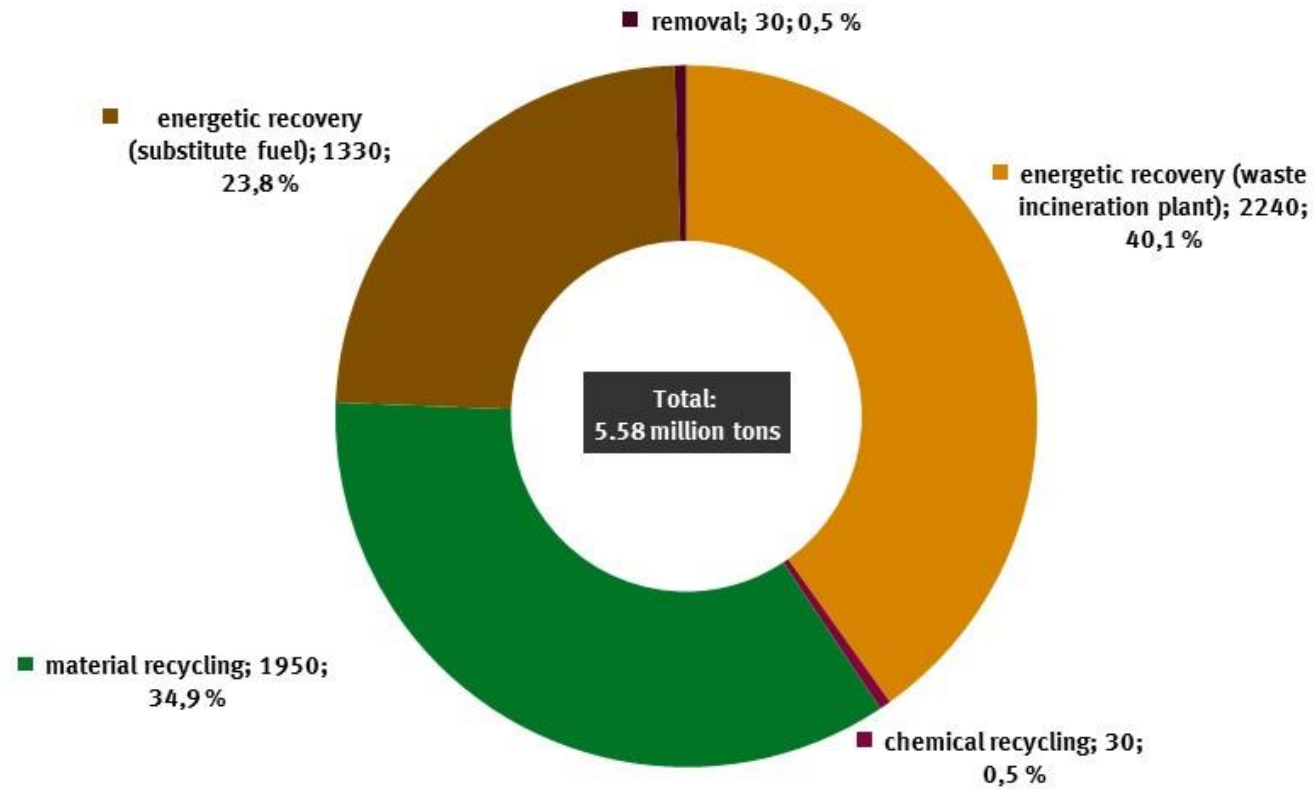
## Trends in the treatment of plastic waste (including by-products) in Germany



Source: Federal Environment Agency 2025, compiled by the author using data from CONVERSIO Market & Strategy GmbH – Material Flow Analysis of Plastics in Germany for several years.

- In Germany, since 2005, only pre-treated municipal waste may generally be landfilled. Therefore we see a considerable increase in energy recovery since 2005.
- Starting in 2021, by-products are reported separately. Previously, these were included in the total amounts of plastic waste. However, they do not fall under the definition of waste pursuant to the waste Framework Directive and Section 4 of the German Circular Economy Act.
- Until 2019 the calculation point for plastic waste recycling was at the point of entry into the processing facilities (quantities sent for recycling), since 2021 this point is prior to the final step of the recycling process (e.g. extrusion). Losses from shredding, post-sorting, and washing processes are thus taken into account and deducted. The new method is based on EU Implementing Decision 2019/665. Although this decision refers to packaging, it has also been applied here to other plastic waste streams.

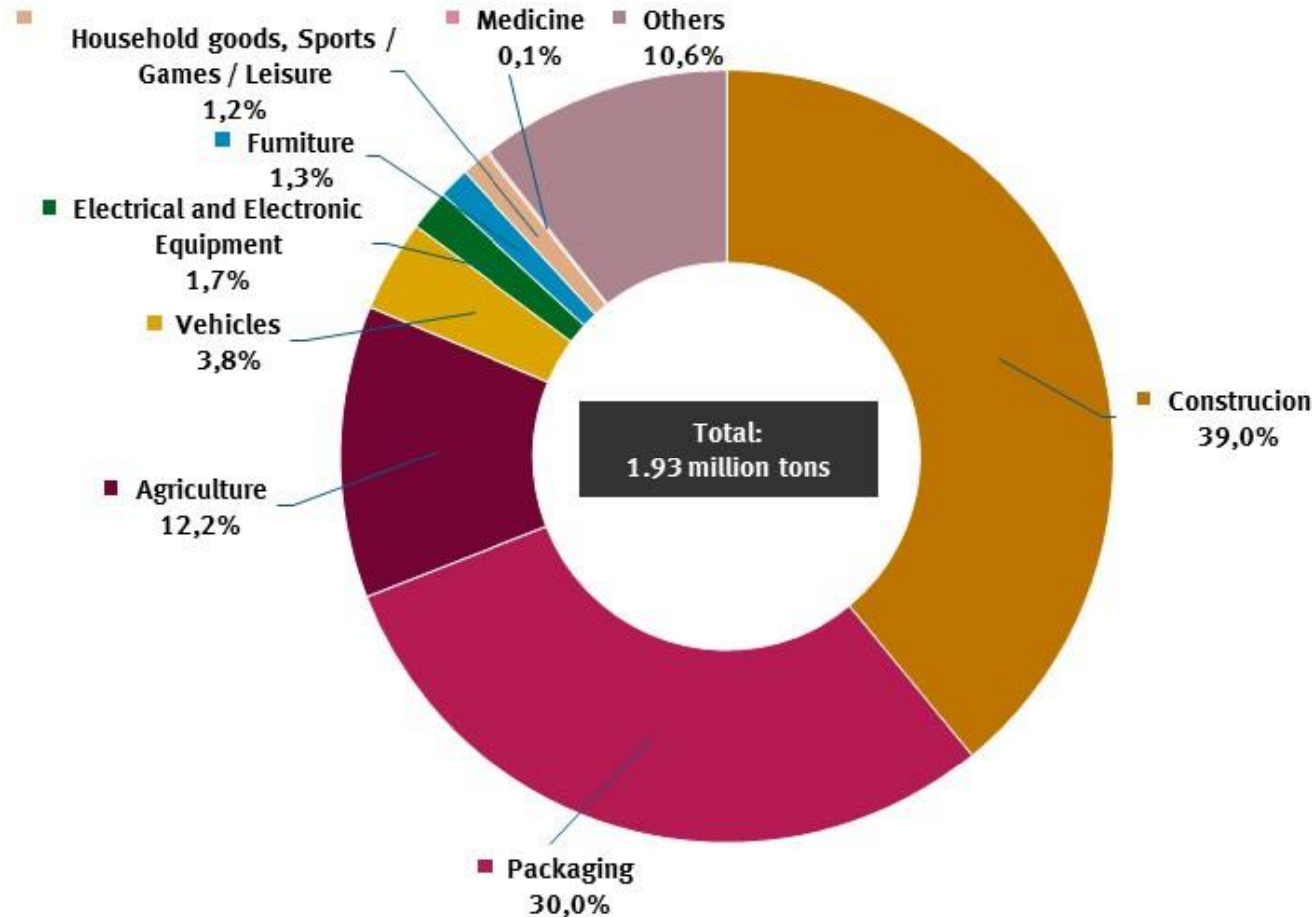
### Generation and Disposal of Postconsumer Plastic Waste in Germany in 2023 (in kt and %)



- A total of 5.91 million metric tons of plastic waste was collected in Germany and sent for material or energy recovery. Post-consumer waste accounted for 5.58 million metric tons, while post-industrial waste accounted for 0.33 million metric tons.
- In terms of volume, plastic waste from the packaging sector remains the most significant source for the production of recycled materials
- The recycling rates set forth in the Packaging Act are a key driver of plastic recycling.
- In 2023, 52.3% of plastics from packaging waste were recycled (calculation point prior to the final step of the recycling process).

Source: Federal Environment Agency 2025, compiled by the author using data from CONVERSIO Market & Strategy GmbH – Material Flow Analysis of Plastics in Germany 2023

## Use of recycled plastics in Germany in 2023

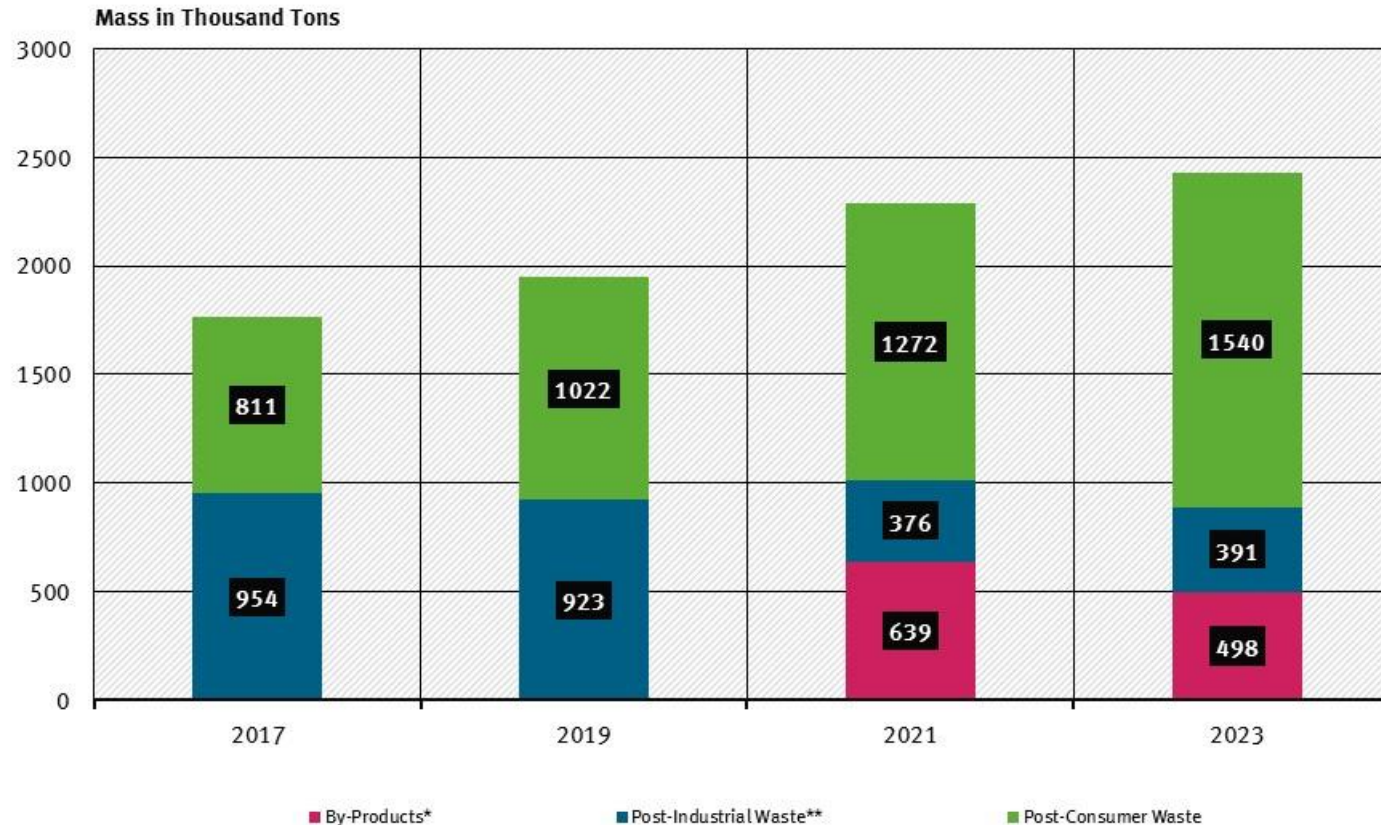


- The recycled plastic material derived from post-industrial and post-consumer waste is primarily used in the construction sector, in packaging manufacturing, and in agriculture, horticulture, and forestry. In 2023, 1.93 million metric tons of recycled material were used in the production of plastic goods.
- The proportion of recycled material used in plastics processing that comes from post-consumer waste rose to 12.0% (1.54 million metric tons of recycled post-consumer waste relative to the total processed volume of 12.85 million tons), which represents a significant increase compared to the 9.1% share in 2021. This corresponds to a volume increase of approximately 270,000 tons

Source: Federal Environment Agency 2025, compiled by the author using data from CONVERSIO Market & Strategy GmbH – Material Flow Analysis of Plastics in Germany 2023

# Trends in the Use of Recycled Materials in Plastics Processing

Trends in the Use of Recycled Materials in Plastics Processing



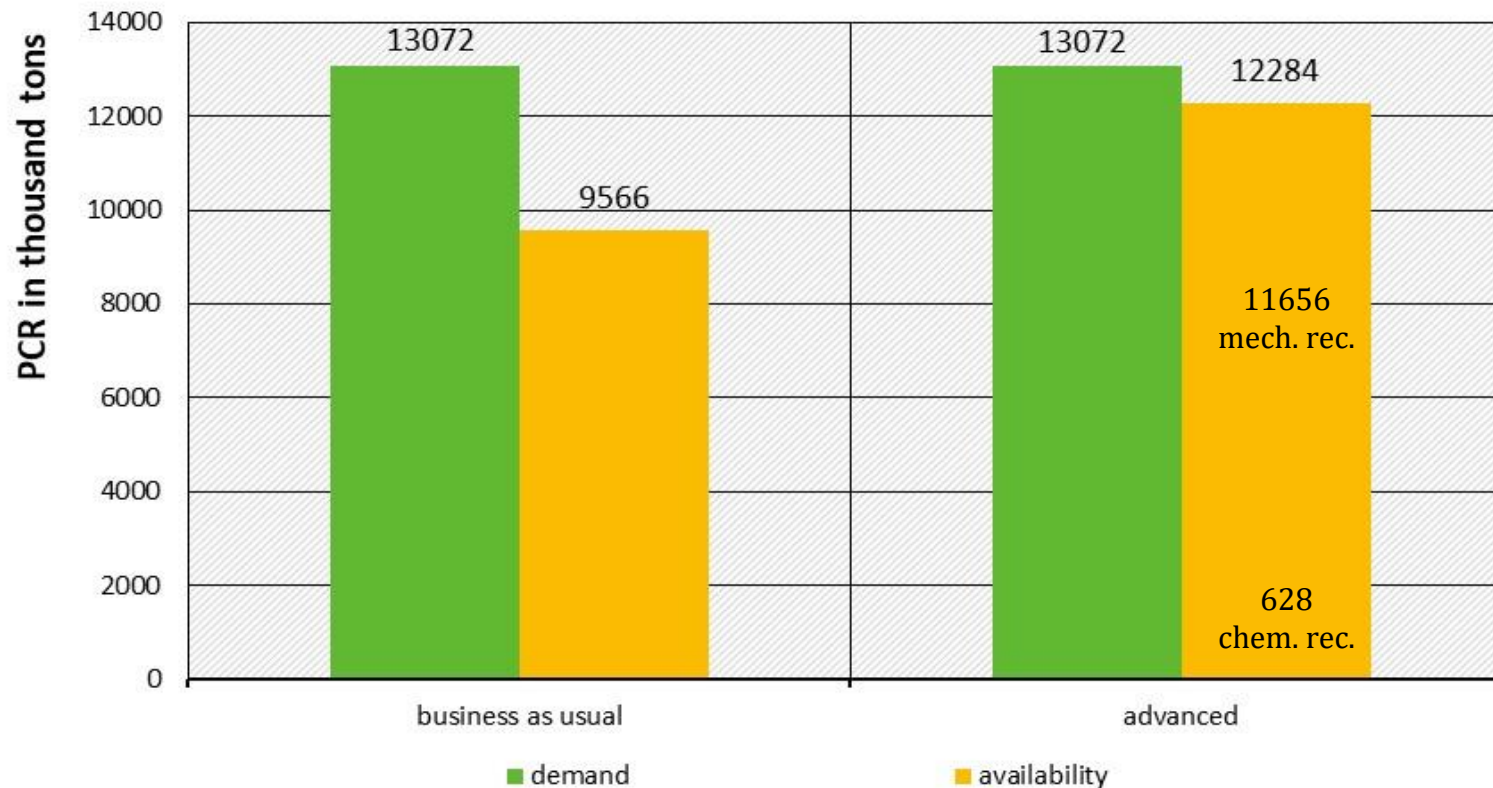
\* By-products are not classified as waste. According to Section 3(25) of the Circular Economy Act, their reintroduction into the production process does not constitute recycling. A distinction has not been made until 2021.

\*\* By-products are still included in the figures for 2017 and 2019.

Source: Federal Environment Agency 2025, compiled by the author using data from CONVERSIO Market & Strategy GmbH – Material Flow Analysis of Plastics in Germany 2023

# Demand and availability of PCR in EU 2030

Demand and Availability of PCR in EU 2030



- Demand based on legal mandatory requirement about 10.7 million tons
- Demand for legal mandatory requirements plus market driven demand about 13.1 million tons
- Both scenarios assume the same export surplus as in 2022 (1074 kt).
- Taking into account the statutory and market-related PCR requirements per application sector and the corresponding PCR availability, the difference between supply and demand amounts to
  - 3506 kt in the business-as-usual scenario
  - 788 kt in the advanced scenario

Source: compiled by the author using data from [CONVERSIO Forecast for PCR availability 2030](#)

# Thank you for your attention!

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