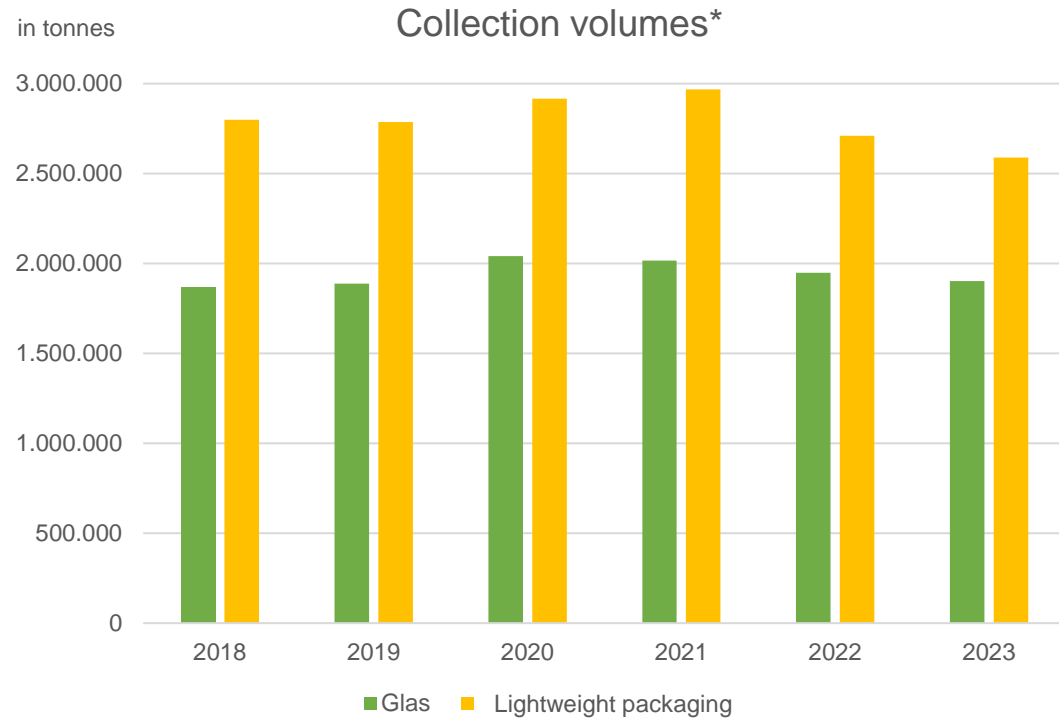


# How much packaging waste are we talking about?

## Packaging volumes collected by dual systems



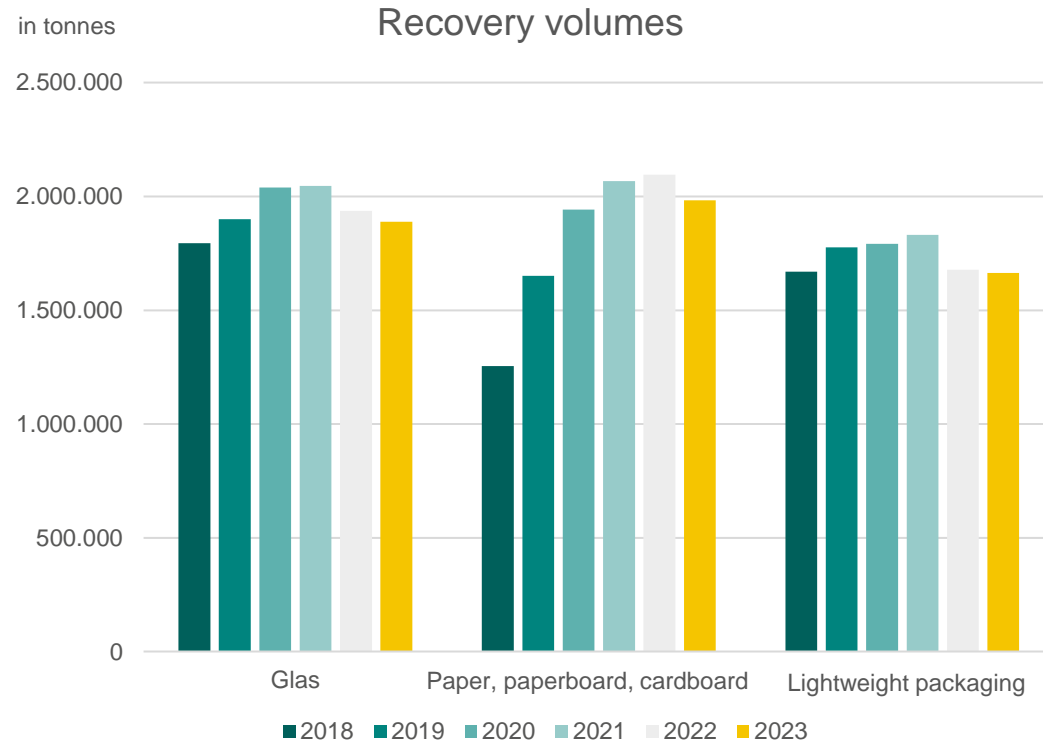
Packaging waste volumes from private final consumption saw another slight decline in 2023, with reductions noted across all material groups.

The main reasons behind the decline are:

- ◆ Overall use of packaging continues to decrease due to the ongoing recession and subdued consumer sentiment.
- ◆ A further reduction in the number of glass collection container sites in 2023 has once again led to a drop in glass collection volumes.

\* With paper/paperboard/cardboard packaging and non-packaging collected together, packaging-only numbers are unavailable. Lightweight packaging collections also include residual waste (sorting errors) and other volumes. In regions where recycling bins are used, only packaging shares are taken into account (retail, grouped and shipment packaging).

# Packaging waste volumes from private final consumption ... ... that were transferred for recovery (2018 – 2023)



- ◆ As a result, recovery volumes also declined in 2023 across all material groups.
- ◆ In addition to the reasons listed on slide 6, consumers often place recyclable materials in the wrong waste bin. These sorting errors prevent these materials from being transferred for recovery.
- ◆ This highlights the need for action to help consumers sort their waste correctly. Pre-sorting by consumers is a crucial precursor to high-quality recycling.

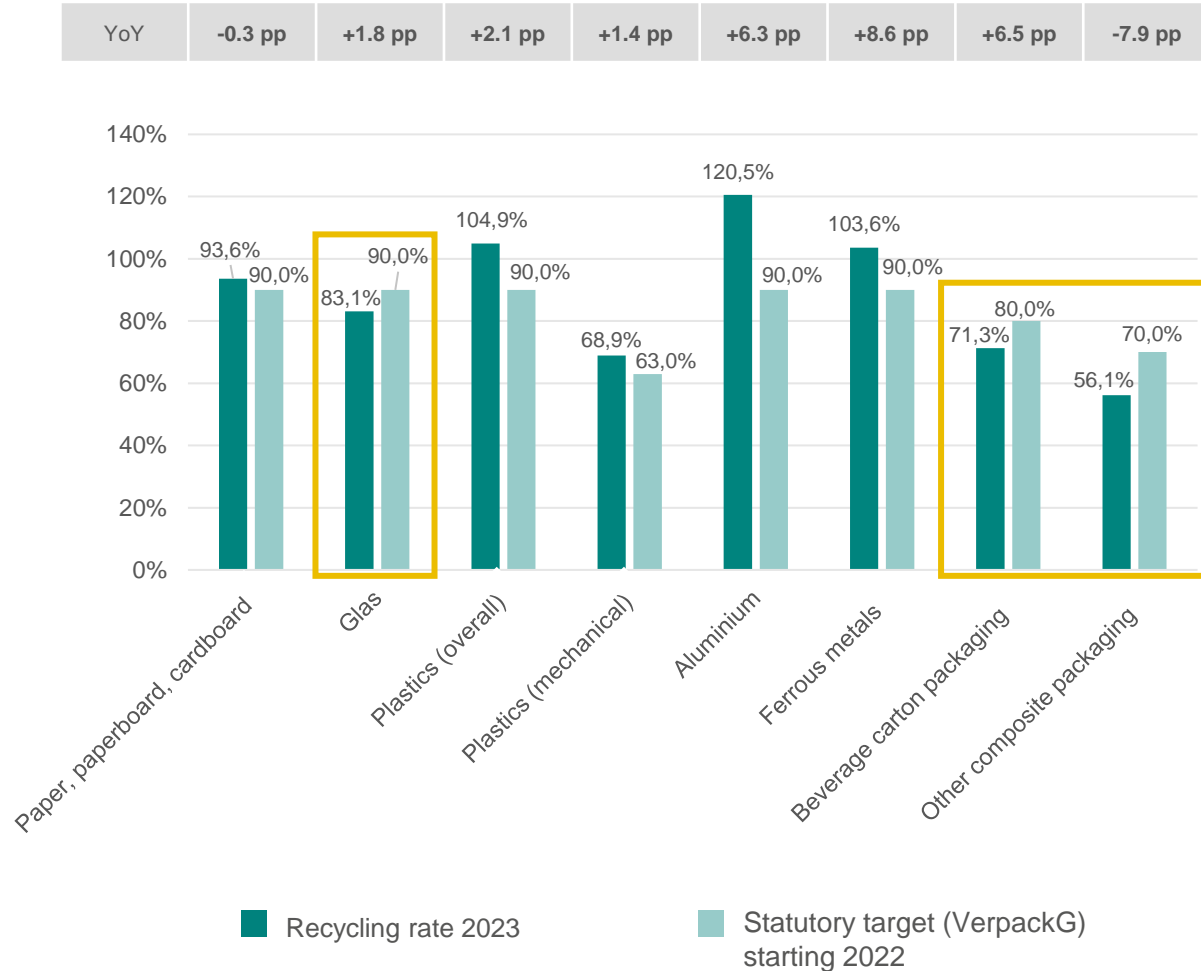
# Total recycling rate

... for packaging waste from private final consumption

- ◆ The total recycling rate based on packaging volumes participated with dual systems was around 82 percent in 2018 (more than 4.7 million tonnes of packaging waste recovered across all material groups).
- ◆ By 2023, the rate had increased to over 90 percent (around 5.5 million tonnes of packaging waste recovered across all material groups).

# Recycling rates 2023\*

The systems achieved the following recycling rates in the 2023 reference year:



- ◆ Recycling increased year-on-year in 2023, except for paper/paperboard/cardboard and other composite packaging.
- ◆ Five out of eight statutory recycling quotas were exceeded, with plastics, aluminium and ferrous metal significantly surpassing their targets.
- ◆ The rates for glass, other composite packaging and beverage cartons fell short of the statutory quotas.
- ◆ Despite this, progress was made in the glass and beverage carton groups, with year-on-year increases in recycling rates. The recycling rate for beverage cartons remained below pre-2022 levels.
- ◆ In the composite packaging group, the statutory quota was missed by a wide margin – 13.9 percentage points – and lagged an additional 7.9 percentage points further behind the target compared to the previous year.
- ◆ For lightweight packaging, 51.2% of collected volumes were transferred for recovery, exceeding the requirement of 50%.

\* Ratio of recovery volumes to participation volumes; transfer for recycling, in the case of plastics: transfer for recovery (including energy recovery) or mechanical recovery

# Legal framework ...

... and development of packaging recycling in Germany

- ◆ Germany has the necessary conditions for a well-functioning and well-monitored system.
- ◆ Based on the Verpackungsgesetz (Packaging Act), the LUCID Packaging Register and the Zentrale Stelle Verpackungsregister (Central Agency Packaging Register – ZSVR) were established to create transparency in the packaging recycling market.
- ◆ The Act's goal is high-quality recycling. Statutory recycling quotas were introduced and raised in two stages starting in 2018. These quotas have remained at consistently high levels since 2022.
- ◆ The quality of the collected packaging waste mix has declined across all waste containers. This is due to reduced sorting discipline and consumer sorting errors. It is estimated that between 20% and 40% of waste in yellow bins is incorrectly sorted. This complicates the sorting process and negatively impacts recycling outcomes.

Material	Until 2018	2019	2022
Glass	75%	80%	<b>90%</b>
Paper, paperboard, cardboard	70%	85%	<b>90%</b>
Ferrous metals	70%	80%	<b>90%</b>
Aluminium	60%	80%	<b>90%</b>
Beverage cartons	60%	75%	<b>80%</b>
Other composite packaging	60%	55%	<b>70%</b>
Plastics (mechanical)	36%	58%	<b>63%</b>

# What does missing the quotas mean?

Progress, challenges and possible solutions

## ◆ Overall, recycling levels have increased. Positives in 2023:

- **Sorting and recycling facilities** were able to significantly **increase** high-quality mechanical **recycling of plastic and aluminium** packaging.
- Additionally, sorting facilities for lightweight packaging are **increasingly capable of sorting and making small-size flexible PE films** available for recycling.

## ◆ Challenges remain, particularly in the following areas:

- **Other composite packaging, especially fibre-based composites:** recyclability and shortage of recycling capacities due to the closure of a key composite recovery plant in Germany in Q4/2022. In addition, the use of this packaging type continues to rise even though it is difficult or impossible to recycle. GVM forecasts that this trend will persist. Consumers also face difficulties in sorting correctly due to unclear labelling.\*
- **Collection volumes of glass packaging:** There are still not enough glass container locations and glass containers available. To address this, the ZSVR Advisory Board recommends improving the framework conditions to make it as easy as possible for citizens to dispose of their glass waste in dedicated containers.\*\*
- **Beverage carton packaging:** Additional recycling capacities are still required. Although significant improvements were made in 2023 through initiatives by manufacturers and initial distributors of this packaging type, the demand for further capacity remains high.

\* GVM Gesellschaft für Verpackungsmarktforschung (GVM), study published in May 2021: On the substitution of plastic packaging with paper-based composites

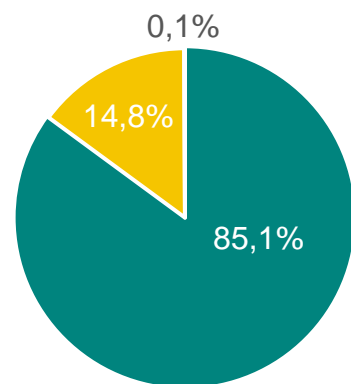
\*\* Recommendation by the ZSVR Advisory Board dated August 2024

# Volume flow records and waste exports

## Shipping packaging waste abroad

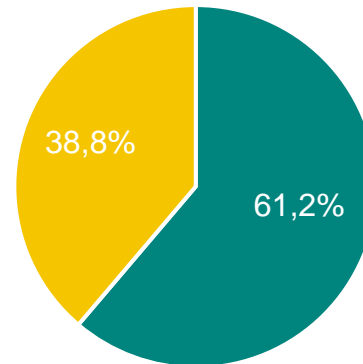
- ◆ Regulations on shipping packaging waste abroad have been tightened, leading to a decline in the export of waste collected through the dual systems.
- ◆ The majority of packaging waste is recovered within Germany.
- ◆ When recovery occurs abroad, most target countries are within the European Union. Recovery outside the EU accounts for just 0.1% to 0.9%, depending on the material group – a negligible amount.
- ◆ Volumes that have not been recognised have declined due to improvements in the obligation to provide evidence.

Sorted plastic packaging



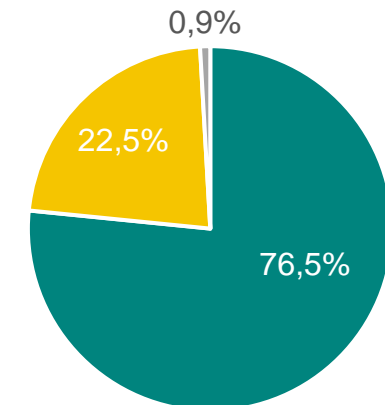
■ Germany ■ EU ■ Non-EU countries (Switzerland, Turkey)

Sorted composite packaging



■ Germany ■ EU

Sorted beverage carton packaging



■ Germany ■ EU ■ Non-EU countries (Turkey)