

# Legal minimum quotas for recyclates in plastic packaging?

Working paper on the current debate

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## Background and purpose of the working paper

European and German policy-makers are emphasising the need for increased use of recycled materials in line with the idea of a circular economy. This is shown, for example, by the presentation of the European Green Deal, the 2nd Circular Economy Action Plan and the wording of the German coalition agreement of 2018. Legal minimum quotas for recyclates and price control instruments are also being discussed with the aim of promoting the use of recyclates.

The aim of the associations involved in this paper is to contribute to an objective discussion about increasing the use of recycled plastics. To this end, the general principles of effective and at the same time market-compliant regulation will first be established. The advantages and disadvantages of various models of recycling promotion are then discussed in the light of this. This paper does not aim at defining a position for a specific model.

### **Recyclates in plastic products and packaging protect the climate and resources**

The use of recyclates<sup>1</sup> in plastic products and packaging makes an important contribution to the circular economy. It reduces dependence on fossil fuels and CO<sub>2</sub>-Emissions in the manufacturing process. High-quality recyclates will have to make a significant contribution to securing the supply of raw materials for the plastics industry given the conditions of climate neutrality that the EU is aiming for in 2050. It is now important to promote this change.

The EU Commission and the Circular Plastics Alliance have set themselves the goal of using 10 million tonnes of recycled materials in plastic products or packaging in general throughout Europe by 2025. This corresponds to about 20 % of the plastics processed in Europe. Under EU legislation, PET beverage bottles must already be made of 25% recycled material by 2025 (30% in 2030).

### **Plastic recyclates have become firmly established in parts of the market**

Stable sales markets have been established for the recycling of plastics that has developed in Germany over the last 30 years. About 12 per cent of the raw material requirements of the plastics processing industry in Germany are currently covered by recycled materials. Significant amounts of recycled material are used in construction, packaging and agricultural applications. Plastic recyclates meet market requirements in these areas of application and are competitive with virgin material in terms of both price and quality.

The proportion of recycled materials in the packaging sector is around 9 per cent. In addition to PET beverage bottles, which already have an average recycled content of 28 per cent in Germany, recyclates are found primarily in industrial and commercial packaging such as pallets, IBCs and film packaging.

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<sup>1</sup> Recyclates are secondary raw materials obtained from the recycling of waste. According to DIN EN ISO 14021, a distinction is made between waste by use (post-consumer) and waste before use (pre-consumer, also known as production waste or "post-industrial waste"). However, ISO 14021 does not include "the reuse of materials from reworking, regrinding or scrap that are created in the course of a technical process and can be reused in the same process". The origin of such material must be traceable.

## **Obstacles to the further use of recyclates need to be overcome**

However, recyclates have scarcely found their place in production in large parts of the packaging market. This applies, for example, to the large area of food packaging, which accounts for around 44 per cent of the packaging market, as well as to other packaging, such as in the area of personal care and cosmetic products or hazardous goods. Despite increased interest, there are still considerable hurdles to the use of recyclates. These markets place special demands on the quality of the raw materials or the availability of large quantities of recycled material in consistent quality. In the area of food and hazardous goods packaging, legal hurdles sometimes prevent a higher proportion of recycled material. Furthermore, there may be variations with regard to colour and odour, insufficient legal certainty regarding product conformity or a lack of a trusted quality seal. It is therefore difficult for recyclates to hold their own in the existing price/performance competition with virgin plastics in large parts of the packaging market.<sup>2</sup>

The use of recyclates is also currently only between 2 and 5 per cent in other plastics processing sectors, such as the production of vehicles, electrical and electronic equipment, furniture, household goods and sports and leisure articles. The shares are only higher in the construction and agricultural sectors, at 22 and 35 per cent respectively.

Increasing the use of recyclates in the overall market requires both improved product design, an improvement in the supply of quantity and quality of recyclates and a strengthening of demand (*push and pull*). It is also important to dismantle the legal hurdles to the use of recyclates in food packaging, including for recyclates from non-food material. Legal certainty must be established through clearly defined requirements for the treatment processes and qualities of recyclates.

## Principles of effective, market-based regulation

Legal regulation should be based on the principles set out below in order to promote the use of recyclates effectively and at the same time as far as possible in harmony with the spirit of the free market:

### **1. Effectively increase recycled input volumes in the overall market**

It only makes sense to pursue measures that lead to an effective increase in the use of recycled materials in the overall market and thus ensure significant savings in resources and emissions that are harmful to the climate.

### **2. Ensure quality and product safety**

The quality and safety of products must not be affected by the use of recycled materials. In particular, consumer protection is paramount. For this reason, the qualities of recycled materials must also be further developed as new fields of application are identified. Quality standards for recyclates can contribute to greater legal certainty for plastics manufacturers.

### **3. Preserve free-market principles**

The objectives of the use of recycled materials can be achieved most efficiently in the market as a whole by preserving free-market principles such as supply and demand –

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<sup>2</sup> The situation is made more difficult by the fact that the production of new plastic goods benefits to a greater extent from infrastructure and environmental costs that have not yet been internalised than does the production of recyclates.

with the transparent inclusion of previously non-internalised infrastructure and environmental costs. This allows the risk of supply bottlenecks to be minimised and new developments in technology and the market to be adopted.

**4. Avoid competitive disadvantage for the German economy**

Germany has a vigorous plastics industry in which all stages of the cycle are represented, from raw material production to processing and recycling. The competitiveness of all participants in this sector must be safeguarded in order to avoid jeopardising necessary investment in the recycling sector.

**5. Ensure the free movement of goods within the EU single market**

Legal requirements for the use of recycled materials should apply throughout Europe in order to avoid endangering the EU internal market.

**6. Establish enforceability**

Legal regulation must be enforceable with a minimum of effort on the part of authorities and industry.

## Models of statutory minimum quotas and alternative options to promote the use of recyclates

Minimum quotas on the use of recyclates basically constitute a major intervention in the market and in the freedom of manufacturers to design their products. This could entail risks, e.g. for product safety and the development of commodity prices. Financial control instruments should therefore be examined in addition to quota models. Furthermore, extensive use should be made of non-legislative measures to improve supply and strengthen demand, for example in public procurement, the establishment of quality standards, consumer information and the promotion of projects and investment. On the whole, a balanced package of measures is needed to improve supply and strengthen demand in the recycle market (*push and pull*).

Various players in Germany and the EU are currently demanding minimum quotas for the use of recycled materials in plastic products. Two approaches can be distinguished when viewed systematically: Product-specific recycle use quotas and material- or polymer-specific substitution rates. Price control mechanisms are also being discussed as a further approach to statutory incentives in addition to these quota models.

It should be noted that the various control mechanisms are not mutually exclusive, but can also complement each other. There are also many different possibilities for shaping the models under discussion. This paper is intended as an invitation to further engage in the political discourse on suitable models of control with the aim of increasing the use of recyclates as effectively as possible and closely aligned with market conditions.

### 1. Minimum quotas for the use of recyclates in certain products or product segments (product-specific recycle use quotas)

This quota model aims at obliging the marketers of certain products and packaging to use recycled materials to a minimum extent defined by law. One example of this is the EU's single-use plastics directive, which stipulates that

PET beverage bottles must contain a minimum of 25 per cent recycled material from 2025 and a minimum of 30 per cent recycled material from 2030.

The minimum quotas give recyclate suppliers a guarantee of demand and thus contribute to the security of investment in the waste management and recycling industry (*pull effect*). They can be designed either as a national average value for the industry, as an average value for the individual marketer (analogous to the fleet model for CO<sub>2</sub> emissions in the automotive sector) or as an obligation for each individual product.

Product-specific recyclate use quotas are generally only considered in those segments where the economy can ensure that recyclates are available on the market in sufficient quantity and quality. The level of the quotas must also take account of the fact that the potential for using current recycled qualities is limited due to technical and regulatory requirements. If the quotas are too high, there are risks to quality, product safety and the supply of raw materials, combined with the risk of sharply rising prices for recycled materials in the required qualities and the products made from them. It should be noted that demand for high-quality recyclates will also rise sharply abroad up to 2025 due to legal requirements and extensive voluntary commitments by industry.<sup>3</sup>

Closed material cycles constitute a special variant of product-specific quota models. In this case, the aforementioned market risks are minimised by making all stages of the value chain, including the waste management industry, legally obliged to make the plastic available again for the same application.

Product-specific recyclate use quotas cannot guarantee that the use of recyclates will increase effectively in the overall market. Nevertheless, there are already positive examples. For example, the recycling quota for beverage packaging stipulated in the EU single-use plastics directive, in conjunction with the requirements for separate collection, is already leading to an expansion in production capacity for PET recyclates. However, quota requirements may result in recyclates only being diverted from existing applications to those with a quota. Such diversionary effects often fail to generate environmental and economic added value, especially when additional processing steps in recycling are needed in order to meet the requirements in the target market, while at the same time virgin plastic is used in non-quota applications with lower requirements.

If the recycling industry cannot keep pace with the supply of suitable recyclable waste, there is a risk that investments in additional recycling capacities will not be made. Accompanying measures from the entire plastics value chain are therefore needed to further improve recyclable product design and the separate collection of packaging waste in the household and commercial sectors.

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<sup>3</sup> Many of the world's largest food companies, including Nestlé, Unilever, PepsiCo, Coca-Cola, Mars and Danone, have committed to using 25 per cent or more recycled material by 2025. According to the current market situation, only the use of recycled PET from bottles is available for food contact applications. This, in combination with the legal obligation under the EU single-use plastics directive to use 25% recycled material in beverage bottles from 2025, is already leading to sharply rising prices for suitable R-PET on the market.

## 2. Material- or polymer-specific substitution rates

Material- or polymer-specific substitution quotas oblige plastics producers to generate a certain minimum proportion of the plastics sold on the market from the recycling of plastic waste. It follows from the obligation that the quantity of virgin material that a plastics producer is allowed to sell on the market is limited by the quantity of recycled material sold. A producer of virgin plastic goods must therefore invest in the recycling business in order to remain active on the market. If this model is extended to include a trading system with certificates for virgin plastics, the plastics producer can also meet its obligation by acquiring certificates for the sale of virgin plastics from other plastics suppliers, including recyclers. Certificate trading ensures that investments in recycling are made where they generate the most economic value added.

The relative scarcity of virgin plastic on the market has the effect of making it more expensive, thus providing a financial incentive to use recyclates, which in turn could become cheaper through economies of scale. The price incentive generates more demand for recyclates (*push effect*). Substitution rates can be defined generally for the material plastic or for individual types of polymer, e.g. PE, PP, PET or PS.

This model also means that the share of recycled materials in the total market can be controlled by the legislator in a targeted manner without the need for any specifications as to the products or packaging in which the recycled materials are used. Market self-regulation ensures that the increase in the use of recyclates is initially in those applications where the economic and legal hurdles are the lowest. Over time, a gradual increase in the use of recycled materials is possible for increasingly challenging applications, including food contact materials.

Nevertheless, this model also involves market risks. As the statutory requirement for the use of recycled materials increases, the more demanding markets have to be served with recycled materials. If the produced recycled qualities do not keep pace with the required quality development, the markets that cannot process the offered recycled qualities may be threatened by supply bottlenecks or rapidly rising prices for new plastic goods. Such risks to the economy can, however, be reduced by pan-European regulation, a gradual increase in quotas with accompanying market monitoring, and suspension clauses in the regulations in the event of extreme price developments.

## 3. Alternative price control instruments

Dynamic market forces can be used effectively through economic incentive systems in the interest of an intended ecological steering effect. There are a great many proposals for price control mechanisms to promote the use of recycled materials. They range from financial incentives within the framework of the licence fees for packaging (as already laid down as an aspect of Section 21 of the Packaging Act – VerpackG) to tax advantages or CO<sub>2</sub> credits for recyclates and the integration of the plastics and recycling industry in CO<sub>2</sub> emissions trading scheme.

The mechanism of action of this type of incentive is basically to give plastic recyclates an advantage on the market in price competition with virgin plastics and thus to generate stronger demand (*push effect*).

The retail trade is increasingly asking for recyclable packaging and packaging with recycled content in line with the logic of Section 21 VerpackG. Financial support for recycling-friendly product design also has a positive effect on the quality of the recyclates produced.

## Summary of advantages and disadvantages of the different models

Principles of effective and market-based regulation	Product or segment-specific usage rates	Material- or polymer-specific substitution rates	Price control instruments
1. Effectively increase recycled input volumes in the overall market	Increase in the overall market possible, but not guaranteed. Danger of mere redirection of the use of recycled materials from existing fields of application to new applications.	Guaranteed increase in the overall market through statutory substitution rate.	Increase in the overall market possible, but not guaranteed. Danger of mere redirection of the use of recycled materials from existing fields of application to new applications.
2. Ensure quality and product safety	Risks to quality and product safety if it cannot be ensured that recyclates are available in sufficient quantity and quality for the regulated markets.	Risks to quality and product safety if it cannot be ensured that recyclates are available in sufficient quantity and quality for the regulated markets.	No risk for quality and product safety.
3. Preserve free-market principles	Major intervention in the freedom of product design, associated with risks for price increases in the event of a shortage of recyclates in regulated markets.	Self-regulation of the market by supply and demand remains largely intact, as the market decides in which applications the use of recyclates is used. This increases efficiency and minimizes risk in the overall market.	The market mechanism remains basically the same, since the price of primary material is increased or recyclates only act as financial incentives.
4. Avoid competitive disadvantage for the German economy	Only possible to avoid competitive disadvantages with EU-wide regulation and obligation also for non-EU imports.	Only possible to avoid competitive disadvantages with EU-wide regulation and obligation also for non-EU imports.	Only possible to avoid competitive disadvantages with EU-wide regulation and obligation also for non-EU imports.
5. Ensure the free movement of goods within the EU single market	Only with EU-wide regulation.	Only with EU-wide regulation.	Only with EU-wide regulation.
6. Establish enforceability	Places a great challenge on enforcement. A large number of parties with obligations must be monitored.	Enforcement focuses on a smaller number of parties with obligations.	Depends on how it is set up.

## Outlook

The transition from a linear to a circular, resource-optimised and climate-neutral economy entails a profound structural change in the supply of raw materials. Policy-makers are challenged to set the course for structural change through clear objectives and dependable overall conditions. One thing is incontrovertible: the circular economy must also remain a market economy, not only in order to ensure prosperity and quality of life in Europe in the long term, but also to be able to achieve the set goals safely and efficiently.

The aim of the associations Arbeitsgemeinschaft Verpackung + Umwelt e.V., IK Industrievereinigung Kunststoffverpackungen e.V. with this paper is to intensify and accelerate the debate on suitable funding models for the use of recycled plastics. If Germany is to be able to live up to its pioneering role in the development of a competitive, resource- and climate-friendly circular economy, it needs to be clear by the end of 2020 at the latest what approaches to control are favoured by Germany. This position can then be introduced at an early stage into the EU legislative process on the use of recyclates expected for 2021/2022.