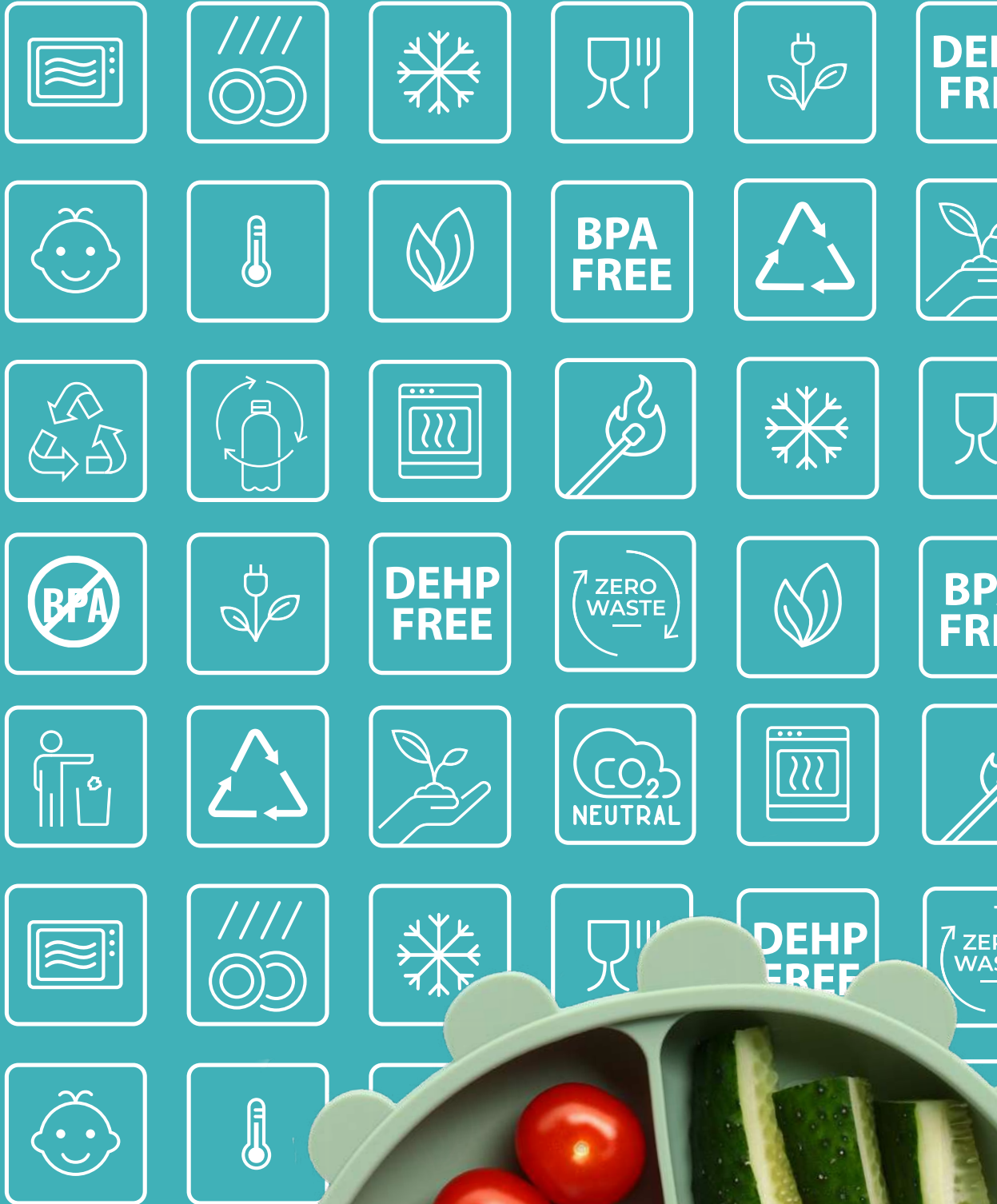


verbraucherzentrale

KITCHEN UTENSILS MADE FROM SUSTAINABLE RAW MATERIALS – ARE THEY SAFE TO USE?

A market check by the consumer advice centres



CONTENTS

1. KEY FACTS AT A GLANCE.....	04
2. BACKGROUND.....	06
2.1 What are food contact materials?.....	06
2.2 Current situation.....	06
2.3 Information gaps and labelling requirements for consumers.....	07
2.4 Legal situation.....	08
3. OBJECTIVES AND APPROACH.....	09
3.1 Why do we need a market check?.....	09
3.2 Nationwide data collection.....	10
3.2.1 Product collection from retail stores.....	10
3.2.2 Collection of data.....	10
4. RESULTS AND EVALUATION.....	11
4.1 Materials made from renewable resources.....	11
4.1.1 A wide variety of material and raw material declarations.....	11
4.1.2 Unauthorised material mixtures still available.....	14
4.1.3 ‘free of’ as an effective marketing claim.....	15
4.2 Instructions for use are not always sufficient.....	17
4.2.1 Inconsistent usage instructions on packaging.....	19
4.2.2 Fewer usage instructions directly on products.....	19
4.2.3 Insufficient usage instructions for items intended for children.....	20
4.3 Numerous claims about sustainability.....	21
4.4 Products with questionable marketability.....	23
4.4.1 Some products without marketability due to unauthorised raw material mix.....	24
4.4.2 Creative designations and foreign-language labelling make it difficult to assess the marketability of individual products.....	24
4.4.3 Some items advertise using self-evident or misleading statements.....	25
5. CONCLUSION.....	26
6. DEMANDS.....	27
7. ANNEX.....	28



1. KEY FACTS AT A GLANCE

Kitchen utensils are intended for contact with food. However, if they are not used as intended, or manufacturers use materials that are not suitable for sale, harmful substances can be transferred to the food. Consumers can also be misled if manufacturers make inadequate or unverifiable claims regarding sustainability. Consumers must be protected from health risks and deception. This is why the consumer advice centres examined the range of reusable tableware and kitchen utensils made from renewable materials in this market check. A total of 48 products were checked to see what information was available on the material used and the raw materials used and what information was given on safe use. Both the labelling on the products themselves and on their packaging were taken into account. The advertising claims on the sustainability of the products were also recorded.

A large number of material and raw material specifications were found. Only in some cases was it clear which specific materials were involved. Around half of the products contained general information such as ‘plant-based raw materials’ or ‘bioplastics’. In the majority of cases, these were supplemented by specific information. For example, raw materials such as ‘bamboo’ or ‘wheat straw’ were mentioned. In some cases, the plastics produced from renewable raw materials, such as polyethylene (PE) or polylactide (PLA), were also listed. However, the full composition often remained unclear. In the case of four products, the material details indicated that these were not marketable, as plastic mixtures may not contain bamboo, for example. These unauthorised material mixtures are known to release harmful substances into food. A further five items contained plastic mixtures with wood flours or fibres. These are also no longer permitted after a statutory transitional period.

48
Products

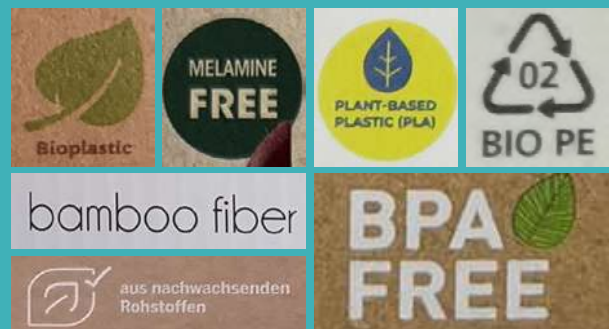


With regard to the instructions for safe use of the items, the consumer centres found the following:

- There were significantly fewer instructions for use on the products than on the packaging.
- The symbols used, for example for dishwasher or microwave suitability, varied greatly in terms of their graphic design, clarity and visibility/legibility.
- The majority of the **packaging** contained information on dishwasher cleaning and food safety. Just under half of the packaging carried information on microwave suitability and temperature information
- The **products** themselves were predominantly labelled as food-safe (just over half of the products). Just under half of the items were labelled as dishwasher-safe. One third of the products had a reference to microwave suitability. No instructions for use were found on around a third of the products, including three that were explicitly intended for children according to their packaging.

Almost all products carried one or more advertising claims relating to sustainability aspects:

- Half of the 48 items were advertised with the claim 'biobased'. This is not legally protected. For example, it is not stipulated which materials are specifically included and what minimum proportion of organic materials must have been used in production.
- Other sustainability claims related to environmental friendliness, climate footprint, naturalness or reusability, for example.



2. BACKGROUND

2.1 THESE ARE FOOD CONTACT MATERIALS

Food contact materials are all materials and objects that come into contact with food during production, packaging, storage, preparation and consumption. This includes, for example, kitchen utensils and crockery, food and to-go packaging. The minimum requirements for such items stipulate that, under normal conditions of use, no components are released into food in quantities that could jeopardise human health. Likewise, these items must not alter the composition or sensory properties of the food. Misleading labelling, advertising and presentation of the materials and articles are also prohibited.

Traditional food contact materials are primarily porcelain, stainless steel, glass or plastics such as polypropylene (PP) or silicone. However, boxes, crockery or drinking vessels made from plant-based, (supposedly) ‘green’ materials, i.e. materials that are considered or advertised as sustainable, are increasingly coming onto the market.



2.2 CURRENT SITUATION

When handling food, the question of suitable packaging, containers and receptacles is unavoidable. Trays, boxes or drinking cups make food consumable, transportable and storable. They protect against external influences and keep food fresh for longer. More and more consumers are turning to consumer advice centres because they want to save on plastic and have questions about new packaging materials – for example, how sustainable they are or whether they can be reused.

In addition to traditional materials, plant-based alternatives are increasingly being used for crockery and kitchen utensils. These new food contact materials made from renewable raw materials are being developed as innovative, supposedly more natural and sustainable alternatives to conventional materials and marketed effectively as ‘bioplastics’ without this term being legally defined. The term ‘bioplastic’ or ‘bioplastics’ is used both for plastics made from renewable raw materials and for plastics that are biodegradable or compostable. However, not every plastic made from renewable raw materials is biodegradable. Conversely, not every biodegradable plastic is made from renewable raw materials. Moreover, plastics made from renewable raw materials or biodegradable plastics are not necessarily more favourable for the environment than conventional plastics.¹

These new materials should be viewed critically, not only in terms of advertising, but also in terms of consumer health protection. For example, a study by Goethe University Frankfurt am Main on the toxicity of bioplastics concludes that the proportion of harmful chemicals in these products is just as high as in conventional petroleum-based plastics.² In its report on the evaluation of the basic regulation for food contact materials (Regulation (EC) No. 1935/2004), the European Commission classifies the existing legal requirements as inadequate.³

¹ Federal Environment Agency: *Biobasierte und biologisch abbaubare Kunststoffe*, 2023

² Zimmermann et al.: *Are bioplastics and plant-based materials safer than conventional plastics? In vitro toxicity and chemical composition*, *Environmental International*, Vol 145, 2020

³ European Commission: [COMMISSION STAFF WORKING DOCUMENT EVALUATION of the legislation on food contact materials - Regulation \(EC\) No 1935/2004](#), 2022

2.3 KNOWLEDGE GAPS AND LABELLING REQUIREMENTS FOR CONSUMERS

A consumer survey conducted by the Federation of Verbraucherzentrale Bundesverbands (vzbv) in 2019 shows that more than half of respondents feel poorly informed about the potential health risks of food packaging and almost three quarters have not yet seen any instructions on the use of food contact materials. According to the survey, only just under half of consumers know that items with the glass-fork symbol are suitable for contact with food. 30 per cent of respondents assume that it stands for dishwasher suitability. The vast majority would therefore like to see textual information both on the packaging and on the product itself.⁴

These results were also confirmed in a Europe-wide study conducted by the European Consumer Organisation (BEUC) in 2023. Almost two thirds of respondents in Germany (63 per cent) stated that they had ‘little or no’ information about harmful substances that can migrate from packaging into food. In addition, almost half of respondents in Germany (46 per cent) found it difficult to recognise whether food packaging and containers are safe for use. Many consumers (67 per cent) were concerned about the health effects of chemicals in food packaging. As a result, 67 per cent of respondents said they were in favour of a legal ban on chemicals in packaging and kitchen utensils that could leach into food, even if the health risk is low.⁵

The consumer advice centres also carried out a nationwide market check on the labelling of kitchen utensils and tableware back in 2015.⁶ The focus here was on items that can be heated or come into contact with hot food, such as baking tins, spatulas, microwave and melamine dishes, including children’s tableware. Some plastics release harmful substances into food at high temperatures, so the suitability of the items must be clear and the instructions for use must be unambiguous in order to ensure that they are

used by consumers in accordance with their intended purpose and are therefore harmless to health. The sobering result: missing or inadequate information on use was the rule rather than the exception on these kitchen utensils. On average, material and temperature information could only be found permanently on half of the products. In addition, the manufacturers used many different pictograms, whereby the illustrations were often difficult to read or understand. Additional safety instructions were usually missing, especially for materials such as melamine, which has been proven to be harmful to health at high temperatures. As early as 2015, the consumer centres called for mandatory material information, permanent instructions for use and a precise regulation of comprehensible and standardised pictograms. Hardly anything has changed since then.



⁴ Verbraucherzentrale Bundesverband e.V. (vzbv): [Bevölkerungsbefragung zu Lebensmittelkontaktmaterialien - Ergebnisse einer Befragung von Verbraucherinnen und Verbrauchern, 2020](#)

⁵ European Consumer Organisation (BEUC): [UNWRAPPED | What consumers say about safe and sustainable food packaging. Findings of an eleven-country consumer survey, 2023](#)

⁶ Market check by the consumer centres: [„HEISSE“ KÜCHENUTENSILIEN? Bundesweiter Marktcheck der Verbraucherzentralen zur Kennzeichnung von Lebensmittelbedarfsgegenständen aus Kunststoff, 2015](#)

2.4 LEGAL SITUATION

The legal basis for food contact materials in Europe is set out in Regulation (EC) No. 1935/2004 on materials and articles intended to come into contact with food. According to this regulation, food contact materials must be produced in accordance with good manufacturing practice in such a way that, under normal or foreseeable conditions of use, they do not release substances into food in quantities that are harmful to health, bring about unacceptable changes in the composition of the food or affect the taste and odour of the food. Furthermore, the labelling, advertising and presentation of these materials must not mislead consumers. § Section 31 of the German Food, Commodities and Feed Code (LFGB) stipulates that articles that do not fulfil the requirements of the aforementioned EU regulation may not be used or placed on the market. Despite these legal requirements, undesirable and harmful substances are repeatedly found in food contact materials and the food they contain during food monitoring inspections. One of the reasons for this is that unfavourable or inadmissible material/raw material mixtures favour an increased transfer of harmful substances from the material into the food.

The EU regulation lists 17 types of material for which the EU recognises a need for further regulation, such as cork, ceramics, glass, plastics and paper. However, standardised legal regulations have not yet been issued for many of these substance areas, such as paper, adhesives or paints. Nevertheless, EU Regulation No. 2023/1442⁷ amending Annex I of EU Regulation No. 10/2011, also known as the ‘Plastics Regulation’, has created a little more clarity with regard to the use of plant-based raw materials as additives or fillers in plastics. Accordingly, wood flour and fibres may no longer be used as additives in plastic food contact articles. The wood-like sweet grass bamboo is also not included in the Union list in Annex I of Regulation (EU) No. 10/2011. As clarified in the ‘Bamboo Note’⁸ 2020, bamboo is also not authorised as an additive in plastic food contact articles. Such products are not marketable.

According to Article 4(e) of Regulation (EU) No 10/2011, plastic food contact materials and articles may only be placed on the market if they comply with the compositional and declaration of compliance requirements set out in Chapters II, III, IV of Regulation (EU) No 10/2011.



⁷ European Commission: [VERORDNUNG \(EU\) 2023/1442](#)

⁸ Expert Working Group on Food Contact Materials (‘FCM’): [Summary of discussions on the use and placing on the market of plastic food contact materials and articles containing ground bamboo or other similar constituents](#), 2020

The prohibition of misleading labelling is also included in the framework regulation. Article 3(2) of Regulation (EC) No 1935/2004 states that the labelling, advertising and presentation of materials and articles must not mislead consumers. materials and articles must not mislead consumers. According to Section 33 (1) of the German Food and Feed Code (LFGB), it is also prohibited to place food contact materials and articles on the market under misleading labelling or presentation, or to advertise with misleading representations or other statements. This may also apply to statements that attribute special characteristics to a food contact material or article, although all comparable food contact materials and articles have the same characteristics..

As part of its 'Farm to Fork' strategy, the European Commission had already announced a comprehensive revision of the legal framework for food contact materials in 2020. However, there is still no corresponding proposal for a regulation. Given that studies and impact assessments by the European Commission are still pending, it can currently be assumed that a regulatory proposal at EU level will be delayed by several years.

In the view of the vzbv and the consumer centres, the existing legal basis is still not sufficient to effectively protect the health of consumers from harmful substances from food contact materials.



3. GOALS AND APPROACH

3.1 THEREFORE A MARKET CHECK

New types of packaging materials are slowly but steadily conquering the market and are used in the production of various containers and objects that are intended to come into contact with food. These include, for example, crockery and cutlery, storage and bread boxes, drinking bottles and beakers or cups for long-term use. It can be assumed that consumers will bring kitchen utensils into contact with a wide variety of foods – whether acidic, fatty, liquid, dry or solid – and sometimes fill cups and containers hot or freeze them. This market check looks at reusable crockery and kitchen utensils made from innovative, plant-based materials. It aims to provide an overview of which items are commercially available in Germany, which materials are used and which sustainability claims are made. As health safety is largely dependent on the proper use of the materials, it is also checked whether consumers receive sufficient instructions for safe use. The following questions are therefore answered in terms of consumer health protection:

- Are complete material specifications given
- Are there clear instructions for safe use
- Are certain objects or materials specially labelled for children?



3.2 NATIONWIDE DATA COLLECTION

3.2.1 Product data collection in over-the-counter retail

For the market check, the consumer advice centres visited more than 65 shops across Germany and collected data on a wide range of reusable food contact materials within this very heterogeneous product group. A broad portfolio of different shops was taken into account, including household goods shops, furniture stores, drugstores, toy shops, shops for children's fashion and products, outdoor and camping equipment shops, supermarkets, organic markets and gift shops.

A total of 57 products were recorded, of which a final 48 products were included in the analysis based on the suitability criteria (see Annex, Table A-1: Product list). This market check is a random sample that does not claim to be representative or complete.

The data was collected in the period from 8 April to 31 May 2024 and the items were selected based on the following suitability criteria:

1. **The product was made from or with renewable raw materials.** These include bamboo, wood or bio-based plastics such as PLA, for example from sugar cane. PLA, for example from sugar cane.
2. **The product is intended for permanent use.**
3. **The product belongs to one of the following categories, which are typical and frequently used kitchen utensils:**

Plate, chopping board/dining board, bowl, cup/mug, drinking bottle, lunch box/storage container, cutlery or set of items belonging to the aforementioned categories.

The survey included all products in the above-mentioned categories that carried statements on the use of renewable raw materials on the packaging (every side, not just the main display side) in the form of text, symbols or seals.

3.2.2 Collection of data

For all products surveyed, the information listed below was checked to ensure that it could be located, recorded and evaluated descriptively.

Multiple entries for the different materials were possible, as in many cases the products consisted of raw material/material mixtures, sometimes in combination with conventional plastics. Multiple answers were also possible for the different sustainability statements, and it was also recorded whether the reusable kitchen utensils were explicitly intended for children according to their design.

The following data was collected for all products:

- **Product category**
- **Manufacturer, brand and product name**
- **Presentation for children or intended for use by children**
- **Material, raw materials, components used for production**, e.g. bamboo, bioplastics, wood
- **Mention of non-used materials, raw materials, components**, e.g. bamboo, bisphenol A (BPA), melamine
- **Sustainability advertising, only related to the product**, not to the packaging, e.g. information on climate impact/CO₂ emissions, recyclable, biobased/renewable
- **Instructions for use on the packaging and on the product**, in the form of text or symbols/pictograms, for example suitability for use with food/glass-fork symbol, dishwasher suitability, microwave suitability



4. RESULTS AND ASSESSMENT

4.1 PRODUCTS MADE WITH AND FROM RENEWABLE RAW MATERIALS

In the market check, 48 products made from, or containing renewable raw materials were included in the evaluation (Figure 1). These can be assigned to eight categories.

At least three products were represented in each category and just under a third of the products (15 out of 48) were intended for children due to their design or textual explanations.

4.1.1 A mix of numerous material and raw material specifications

The market check revealed a large number of material and raw material specifications (Figure 2). The entire overview, including terms with the same meaning, can be found in the Annex (Table A-2).

The specific material of the product in question was not always fully specified. 18 products were advertised as ‘bioplastics’ or with equivalent terms. Four products were stated to be ‘natural fibre composites’ or ‘biocomposites’. Seven products were labelled as PLA, four as PE and three as PP.

Figure 1: Number of products recorded in the categories (random distribution)



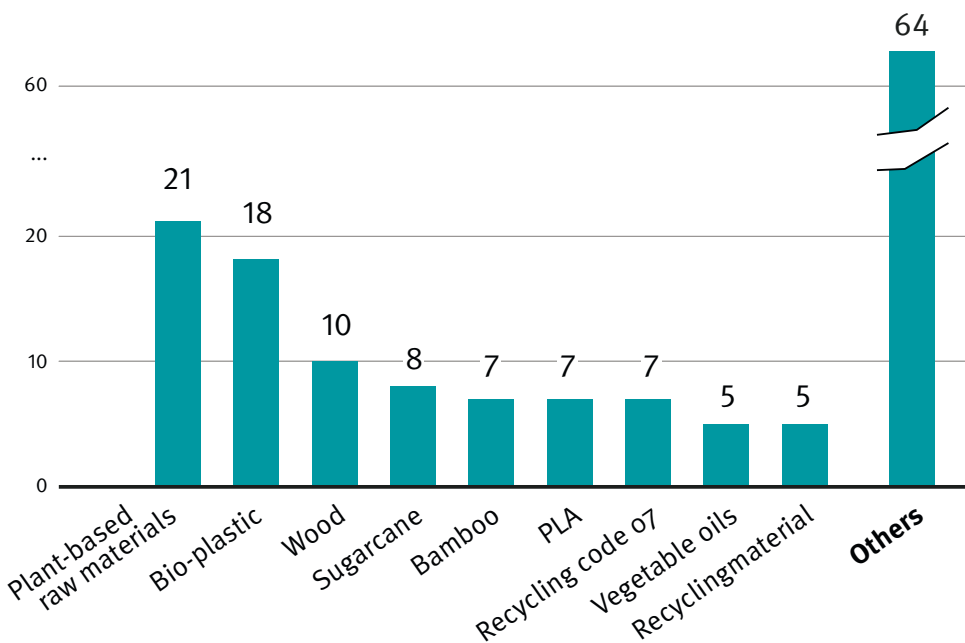
9 The definition of product categories, raw material/material groups, sustainability advertising claims, as well as the definition of the specific instructions for use to be checked, was based on the results of a pre-check carried out in January 2024 in the federal states of Mecklenburg-Western Pomerania, Lower Saxony, Schleswig-Holstein and Thuringia (non-representative randomised sample, unpublished data).

However, all of these designations can conceal different source materials. Only some of these (such as wheat straw, coffee grounds or bamboo) were additionally named on the products or described unspecifically with additions such as ‘sustainable raw materials’ or ‘plant-based’.

Ten products only had a single material specification. Two of these were pure wood and bamboo products. Three other products merely referred to ‘plant-based’ raw materials without specifying the end product, i.e. the type of material. This also applied to one product made from ‘bio-based’ plastic. For one product, only the term wood fibres was given as the material. However, it was apparently a composite material with wood. The specific composition remained unclear.

All other products carried several claims. General information such as ‘plant-based raw materials’ (around 50 per cent of products) or ‘bioplastics’ (more than a third of products) was frequently given. In some cases, both terms were found on a product, in others they were supplemented by specific information. These included, for example, the name of the source material, such as bamboo, wheat straw or sugar cane, or the labelling of the resulting plastic, such as PLA, PE or PP. In principle, however, it was not possible to assess with certainty whether the information was accurate and complete. For the most part, it must be assumed that the references to natural raw materials were intended more for advertising purposes than for consumer information.

Figure 2: Frequency of material information on all products; multiple answers possible



According to the Packaging Act¹⁰, materials can also be labelled with fixed numbers or abbreviations, whereby the numbers 1 to 19 refer to plastics. The numbers 1 to 6 stand for certain materials, while the numbers 7 to 19 are not defined in more detail. These numbers are located within or below a symbol consisting of three arrows arranged in a triangle and are known as 'recycling codes'. 'Recycling codes' were used for 14 products. Seven of these were recycling code 07, which generally stands for an undefined 'other plastic'. In three of these cases, the material was also specifically named as PLA, TPE and S*PC. While PLA and TPE stand for polylactides and thermoplastic elastomers, S*PC is not a common abbreviation. It could be a polycarbonate. According to verbal information

provided by the sales staff at the point of sale, the product was made from coffee grounds. For two products, the material PP could be deduced from the recycling code 05. The recycling code 02, which stands for high-density polyethylene (HDPE), was found on three other products. Four products bore the symbol of cyclic arrows, but without a number for the material. One of these carried the additional specification 'NF-PP', which according to the manufacturer stands for natural fibre polypropylene.³ Figure 3 shows an exemplary overview of the large number and variety of material specifications.



Figure 3: Overview of various material and raw material specifications



¹⁰ German Federal Ministry of Justice: [Gesetz über das Inverkehrbringen, die Rücknahme und die hochwertige Verwertung von Verpackungen \(Verpackungsgesetz - VerpackG\)](#), 2023

4.1.2 Unauthorised material mixtures still on offer

In four of the 48 products, including one product specially designed for children, the consumer centres found that the materials used were not permitted mixtures of materials (Figure 4). According to the labelling, these plastics were manufactured with the addition of bamboo or wheat straw. These components are not permitted in plastics for food contact as they are not included in the Union list¹¹.

Wood, wood flour or wood fibres were mixed with plastic in five products, including one for children. According to the consumer centres, the safety of these products

is questionable. This is because EU Regulation No. 2023/1442 revoked the authorisation for wood flour and fibres. The rationale of the European Commission makes it clear that there is too little information to consider the materials safe. A transitional arrangement is in place to make it easier for companies to adapt to the changes. This means that plastic materials and articles containing wood flour or fibres may be placed on the market for the first time until 31.01.2025. They may then remain on the market until the stocks have been used up. There is also an option to apply for authorisation. The consumer centres criticise this long transitional period, as economic interests stand in the way of consumer health protection.

Figure 4: Examples of products with a composition that is not permitted for sale according to the information provided (left), as well as conspicuous product properties that could indicate a lack of fitness for sale (centre and right)



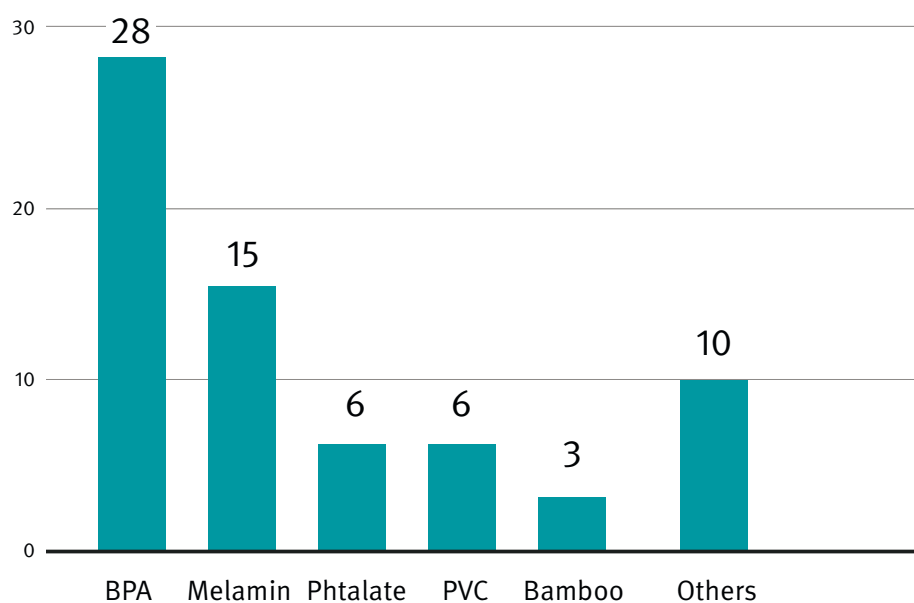
¹¹ According to EU Regulation No. 10/2011, only the substances listed in the Union list in Annex 1 may be used in the manufacture of plastic articles intended to come into contact with food. EU Regulation No. 2023/1442 removed 'Holzmehl und -fasern, naturbelassen' (FCM No. 96) from the Union list (withdrawal of authorisation). Bamboo and wheat straw were never included in the Union list. Consequently, these raw materials are not authorised per se for the manufacture of plastic articles for food contact. For the entry 'Holzmehl und -fasern, naturbelassen' (FCM Stoff no. 96), a transitional arrangement applies until 31.01.2025, and an application for authorisation has also been created.

The composition of nine other products remained unclear. The unclear product information could indicate a critical composition, especially if the apparent nature of the items is taken into account. This applied, for example, to cutting/dining boards which, according to the manufacturer, were made with wood fibres or wood paper fibres. It remained unclear whether the products were produced with plastics or other binding agents, such as resins, because resins, as the marketability and safety may depend on the choice of these raw materials. The high temperature resistance of these products was particularly striking. For a reliable assessment of fitness for sale, comprehensive material testing by means of laboratory analyses would be necessary in these cases.

4.1.3 'free from' as an effective advertising claim

In addition to the information on the materials contained in the products, they also advertised substances and raw materials that were explicitly not used in their manufacture. This applied to 31 of the 48 products analysed. The majority of these products (28) advertised as BPA-free (Figure 5). BPA is an industrial chemical that is used as a starting substance for the production of polycarbonate plastics and epoxy resins.¹² The European Chemicals Agency (ECHA) classifies BPA as a substance of very high concern that can impair fertility and have hormone-like effects. The use of BPA has therefore been banned for baby bottles, among other things. According to the BfR's consumer monitor, more than a third of consumers are aware of BPA¹³. Accordingly, advertising the absence of BPA can be perceived as a special quality feature.

Figure 5: Frequency of 'free from' statements on the absence of certain materials; multiple answers possible



¹² German Federal Institute for Risk Assessment (BfR): [Bisphenol A in Alltagsprodukten: Antworten auf häufig gestellte Fragen](#), 2023

¹³ German Federal Institute for Risk Assessment (BfR): [BfR-Verbraucher MONITOR 02/2023](#)

Just under a third of the products (15) were advertised as not containing melamine. Melamine is processed together with formaldehyde to form a hard and shatterproof plastic and is used, for example, in the manufacture of camping and children’s tableware. However, it is not heat-stable and is therefore not suitable for hot food or for heating in the microwave. Hot rinsing with aggressive cleaning agents, for example in the dishwasher, or damage to the surface with sharp objects could also contribute to an increased release of melamine and formaldehyde

and their transfer to food. The ingested melamine can cause long-term damage to the kidneys and formaldehyde is classified as carcinogenic.^{14,15}

In some cases, entire groups of substances, such as the absence of harmful substances, additives or ‘restricted substances’¹⁶ were also advertised (Figure 6). In the view of the consumer centres, such unspecific statements have too little information value and therefore have the potential to mislead¹⁷, as consumers assume per se that these consumer goods are safe.

14 German Federal Institute for Risk Assessment (BfR): [Fragen und Antworten zu Geschirr und Küchenutensilien aus Melamin-Formaldehyd-Harz, 2019](#)

15 International Agency for Research on Cancer (IARC): [Formaldehyde](#)

16 European Parliament and Council: [Verordnung \(EG\) Nr. 1097/2006 \(REACH-Verordnung\)](#)

17 Court judgement of the Higher Regional Court of Stuttgart on the misleading advertising claim „schadstofffrei“ of 25.10.20218: [2 U 34/18](#)

Figure 6: Examples of information indicating that certain substances and materials are not included or have not been used in the manufacture.



4.2 INSTRUCTIONS FOR USE NOT ALWAYS SUFFICIENT

Almost all products (96 per cent) were either labelled with instructions for use on the packaging or on the product itself, or both. However, the design of the information was very heterogeneous (Figure 7) and the following information was recorded and analysed accordingly as a category: food-safe (including glass and fork symbol), dishwasher-safe, microwave-safe, temperature information (including temperature ranges), freezer-safe, oven/grill/stove-safe, light-resistant, information on careful handling of sharp objects, cleaning instructions, etc.

The range of symbols used both on the packaging and on the products was very broad. Some of the symbols were used without explanatory text. However, they were not standardised in terms of their graphic design, clarity, visibility or legibility. Examples of these diverse representations are shown in Figure 8 on dishwasher suitability and Figure 9 on microwave suitability. It is not always clear to consumers what the symbol is supposed to mean in each case.

Figure 7: Number of instructions for use in the form of textual statements or symbols on the packaging (left) and on the product (right); multiple answers possible

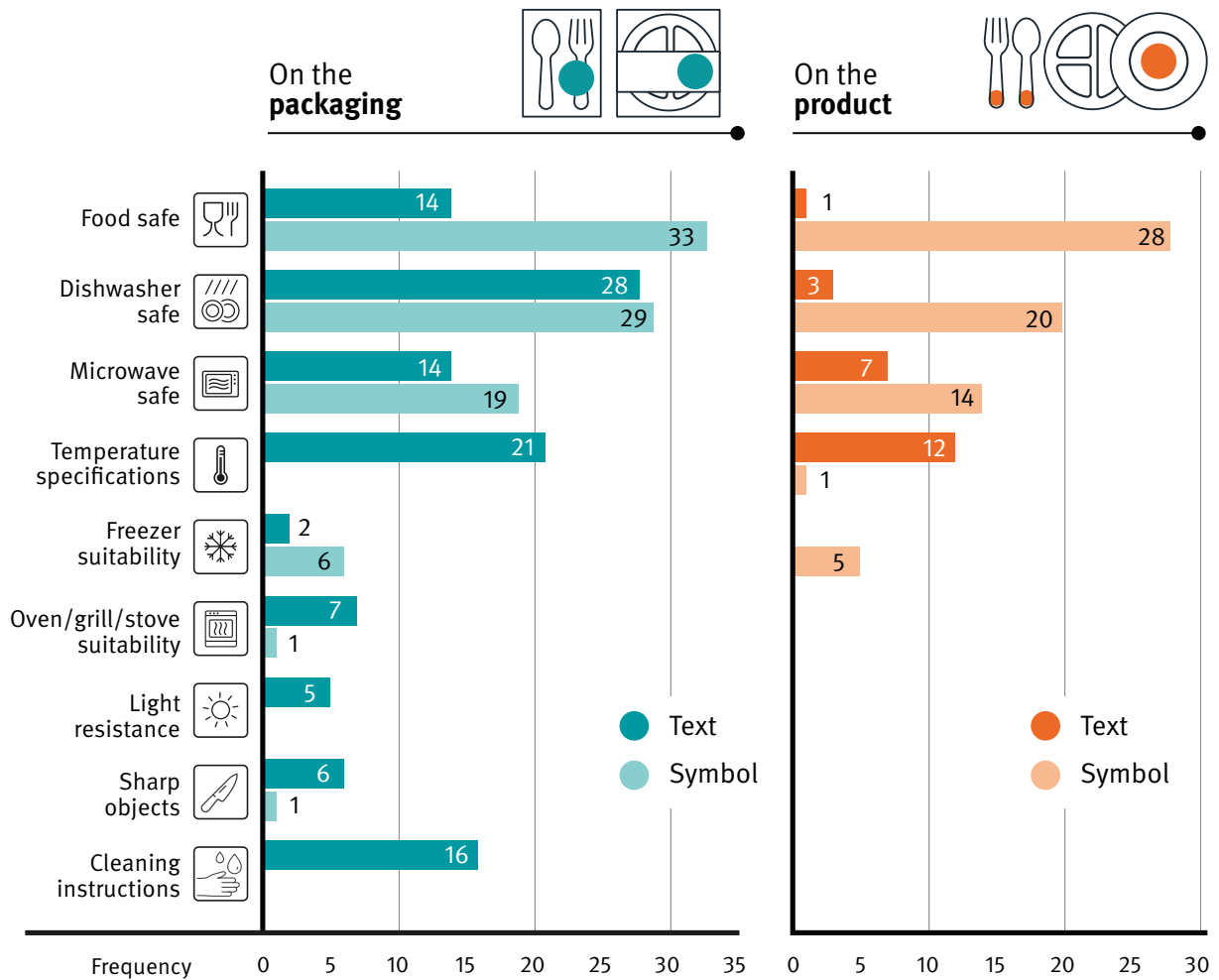


Figure 8: Examples of symbols to show dishwasher suitability



Figure 9: Examples of symbols to represent microwave suitability



One box from Ekobo stood out. Two different symbols for dishwasher suitability were printed on the packaging (Figure 10). Two of the 48 products analysed had no instructions for use, either on the packaging or on the product itself. One of these was

a product intended for children. The information provided by the manufacturer was so inadequate that the intended and safe use remained unknown to consumers.

Figure 10: Different symbols for dishwasher suitability on a product and its packaging



4.2.1 Instructions for use on the packaging are not standardised

To record and analyse the information on the packaging, both the outer packaging of the products as well as tags, inserts, banderoles, labels, booklets, but also information brochures or displays at the point of sale were taken into account, with information on cleaning in the **dishwasher** (40 products) and **food safety** (39 products) being found most frequently. For 22 items, there was information on **microwaveability**. Information on the **temperature ranges** to be observed for safe use of the products was found in 21 cases. These mainly showed limitations in the hot temperature range. Consumers were able to find out whether the items were suitable for freezing in seven products.

A third of the products had cleaning instructions, for example regarding initial cleaning before use or the suitability of using certain cleaning agents.

In some cases, instructions were given on avoiding the use of **sharp objects**, **heat exposure** (such as use in the oven or on the hob) and light resistance (Figure 7). cooker) and **light resistance** (Figure 7). However, this information was only found for around ten per cent of the products in the market check.

4.2.2 Significantly fewer instructions for use on the products themselves

While the product packaging contained a large amount of information, the products themselves rarely contained instructions for use in text or symbol form. Only the symbol form was used more frequently on the products. The information was limited to five of the nine usage instructions surveyed in this market check (Figure 7).

Symbols and text information indicating suitability for **contact with food**, such as the glass-fork symbol (28 products), were most frequently found. Less than half of the products also included information on suitability for **dishwasher cleaning** (20). 17 products had information on their suitability for use in the **microwave**, in some cases with specific maximum temperature and/or wattage information.

Certain containers such as plates, bowls, cups and bottles are intended for hot filling. For these products, the consumer centres believe that **temperature information** is essential for safe use and to avoid unintentional and unnoticed material transfer into food. However, information on the maximum temperature ranges for safe use is also required for all other items that are cleaned hot in the dishwasher, for example. Only 13 products in the market check, i.e. only around a quarter of the items, had temperature information directly on the product. However, temperature information should be permanently displayed on all of these products as far as possible, for example on the kitchen utensils in Figure 11.

Figure 11: Examples of permanent instructions for use on products



On a camping mug, apart from the glass fork symbol, no further instructions for use were found (Figure 12). The cup was sold loose. A dishwasher-safe symbol was printed on the cardboard display in which the cup was offered. From the point of view of the consumer advice centre, additional temperature information would give consumers more safety when using the product. In addition, instructions for use directly on the product are particularly important for kitchen utensils sold loose, as consumers may not even notice the information in the shop.

In total, no instructions for use could be found directly on the product for 17 of the 48 items in the market check, which corresponds to more than a third of the sample. However, permanent instructions for use on the items enable consumers to check the intended use even after the packaging has long been disposed of and the information on the packaging is no longer available. The consumer centres therefore consider permanent instructions for use on products to be particularly important, useful and necessary.

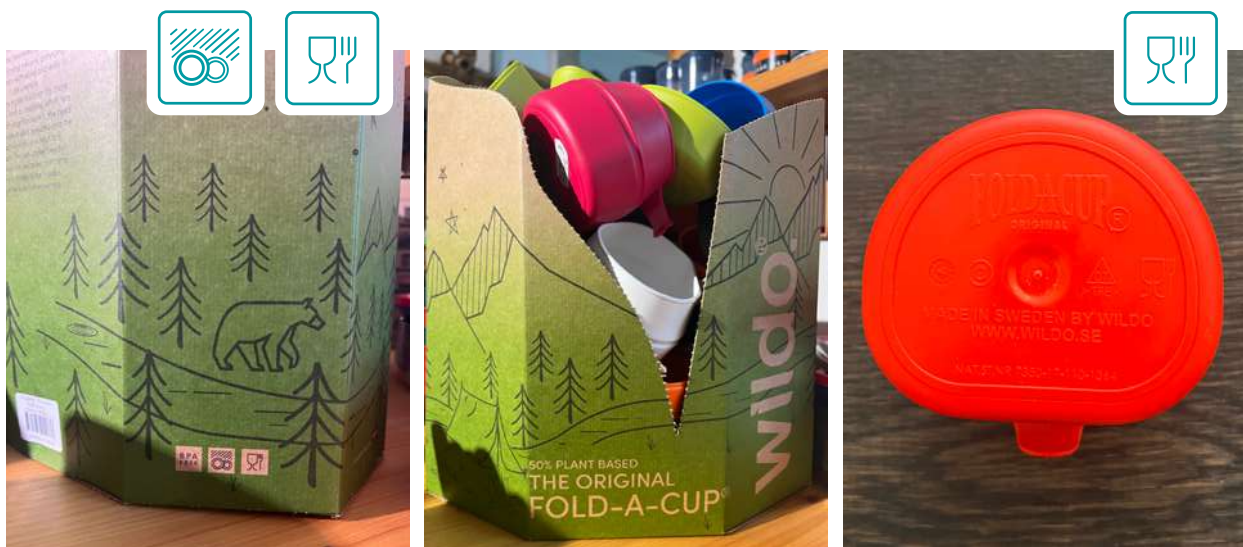
4.2.3 Inadequate instructions for use for objects that are designed and intended for children

As children are among the groups of people particularly worthy of protection, the consumer advice centres believe that adequate labelling for the safe use of food contact materials is essential.

15 of the 48 products in the sample were explicitly intended for use by children. This was made clear by the presentation or labelling. Four children's products did not have any instructions for use on the product, one of them neither on the product nor on the packaging.

14 Children's products had instructions on the packaging regarding **dishwasher suitability**, but only eight on the product itself. Consumers could use ten of the children's products in the microwave (e.g. plates, bowls). Here, one would expect a note on **microwave suitability**. The other products were cutlery or chopping boards. Eight of these products had corresponding information in text or symbol form on the packaging. Eight of the products themselves also carried a microwave warning.

Figure 12: For this collapsible tumbler, the information on dishwasher suitability was only on the large packaging in the shop. (left and centre) The product itself only bore the glass-fork symbol. (right)



Temperature information was only printed on the packaging of around half of the children’s products (eight) and on the products themselves in only four cases. Seven of the items designed for children had the warning/use note “Do not use if there are signs of **damage**”. These were particularly advertised for use by infants and small children.



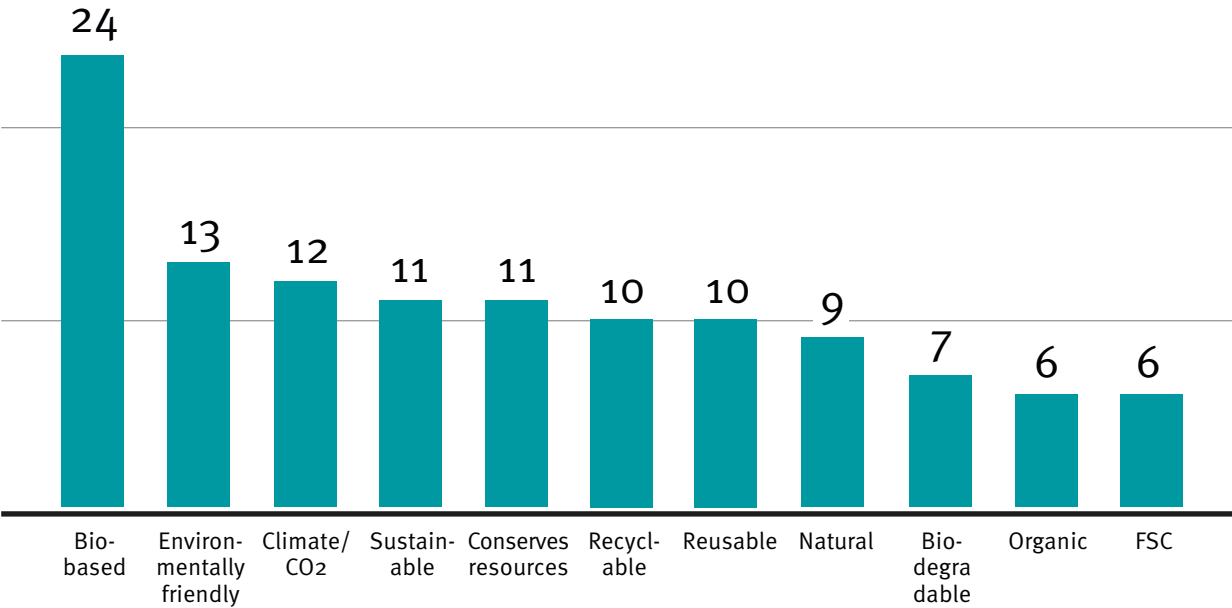
4.3 NUMEROUS ADVERTISING CLAIMS ON SUSTAINABILITY

The majority of kitchen utensils in the market check (44 out of 48 products) carried advertising claims aimed at sustainability aspects. On 28 of these products, several sustainability-related statements could be found. To evaluate the large number of different statements, these were categorized and assigned to different keywords (see Annex, Table A-3).

The products were most frequently labeled with the keyword “bio-based” or with corresponding explanations that they were made from renewable raw materials (24 of 48 products). The term “biobased” is not protected. Therefore, there is no legal requirement for a minimum proportion of biological materials that must be verifiably used for production.

Furthermore, there are no specifications as to which raw materials and materials specifically fall under this category, and numerous claims regarding environmental friendliness (12 products), climate or CO₂ balance (12 products), sustainability (11 products) and reusability (10 products) were recorded. The terms “recyclable” (9 products) and “natural” (9 products) were also used in advertising (Figure 13).

Figure 13: Number of statements found with reference to sustainability, found in the wording or synonym with a similar meaning; multiple answers possible



Furthermore, reference was made, for example, to the protection of the planet, to compensation measures implemented or to cooperation with climate protection partners. Manufacturers also used less informative phrases such as “I’m green”, “we care for nature”, “eat green” or “green soul” as effective advertising claims. In addition, packaging and product designs were sometimes kept in shades of green and brown or supplemented with symbols such as green leaves, suggesting that the products supposedly have sustainable and environmentally friendly properties.

The following three examples provide an insight into the range of sustainability advertising on products in the market check:

A plate from KUPIILKA (Figure 14) was labeled “burnable” with the symbol of a burning match. Consumers cannot clearly deduce from this whether the product, made of composite material containing wood and plastic, can be used as fuel for questionable disposal or whether the term is a warning for flammable material.

A baby spoon from koziol was advertised as being made from “100% biocircular plastic” (Figure 15). The terminology suggests an environmentally friendly, “biological” production method. However, it is unclear which materials are meant and which “circular” properties are associated with them. It is difficult for consumers to derive comprehensible information from this. Only by scanning a QR code is the user directed to the manufacturer’s website and provided with further information to explain the wording.



Figure 14: This plate was labeled “burnable”. It was not clear what exactly the term meant.



Figure 15: The baby spoon was advertised with the term “biocircular”. No clear explanation of this could be found on the packaging.



The following words were printed on the sleeve of a DAMN GOOD PLASTIC BOTTLE (Figure 16): “[...] This bottle brings a story about optimism. About loving our fast paced lives and being respectful at the same time. It feels good to do good.”¹⁸ The product is advertised as being 100% recyclable and made from bio-based plastic from sugar cane. Based on this information, this bottle does indeed appear to be a relatively environmentally friendly option. However, the extent to which the manufacturing process tells an “optimistic story” with regard to nature and the extent to which it can be fully recycled at the end of its useful life cannot be assessed conclusively.

4.4 SEVERAL PRODUCTS WITH MISSING OR QUESTIONABLE MARKETABILITY

According to the law, food contact utensils must be safe for consumers.¹⁹ However, even if the labeling is only in non-German or there are no instructions for use, there is a risk that the products will not be used properly. This in turn can increase the risk of the release of substances that are harmful to health, such as formaldehyde, which are then transferred to the food and consumed. This risk is all the greater if certain raw materials are used and combined improperly. Such kitchen utensils are not marketable.



Figure 16:

Text example of an advertising statement on sustainability on a drinking bottle made of bio-based plastic



¹⁹ European Parliament and Council: [VERORDNUNG \(EG\) Nr. 1935/2004](#)

4.4.1 Some products without marketability due to unauthorised raw material mix

According to the consumer advice centers, four of the 48 products in the market check are **not marketable**. These kitchen utensils are made of plastic to which other substances have been added than those listed in the Union list in accordance with legal regulations.²⁰ For example, several products made of plastic were found that also contained bamboo (either untreated, as fibers or flour). These products therefore do not meet the prescribed compositional requirements and are therefore not marketable (Figure 17), and five items also contained wood, wood flour or wood fibers. The authorization for wood flour and wood fibres was revoked. However, these products may continue to be sold due to a transitional arrangement. In terms of consumer health protection, such a regulation is not satisfactory, as it is questionable whether the materials can actually be considered safe.

4.4.2 Creative designations and foreign-language labelling make it difficult to assessment of the marketability of individual products

For some products, the labeling was not in German or was so fanciful or vague that a **clear violation of the law could not be determined with certainty**. This was the case, for example, when the material “fiber-wood” or “wood composite” or even the wording “made from sustainable paper fibers” was used in advertising. As further information was missing, it was not clear whether the overall product consisted of a wood composite material using plastics or resins, which can be decisive for legal conformity.

In addition, some products were not labeled in German, which could constitute a violation of Article 15(4) of Regulation (EU) No 1935/2004²¹. According to this, all information necessary for safe and proper use must be provided to consumers in easily

Figure 17: Example products which, in the view of the consumer advice centers, were not marketable due to the material and raw material specifications.



²⁰ European Commission: [VERORDNUNG \(EU\) Nr. 10/2011](#)

²¹ European Parliament and Council: [VERORDNUNG \(EG\) Nr. 1935/2004](#)

understandable language. However, in the opinion of the consumer advice centers, this is a violation of the Consumer Goods Regulation²². This requires that consumer goods must bear certain information in German. This includes the information “For food contact” and, if necessary, special instructions for safe and proper use. This means that the labeling does not have to be completely in German. However, this would be sensible and necessary from the point of view of the consumer advice centers.

4.4.3 Some items advertise with self-evident or misleading statements

Some products were **marketable** from the point of view of the consumer centers, **but still had legal violations**.

This applied, for example, to an item with the **claim “dishwasher-safe”**. This term, which ascribes a special property to a product, may only be used if the corresponding standard DIN EN 12875 is met. In the case of this product made of 100 percent bamboo, it remained questionable whether this labeling was permitted. This was because the pictogram to be used by the DIN standard was also not displayed correctly.

Instead, the manufacturer had printed a completely different fantasy symbol on the outer packaging (Figure 18). Bamboo is a natural material and is not suitable for the dishwasher per se, as the hot temperatures and harsh cleaning agents can damage any existing varnish, leach out the material, deform it or even break it.

Some kitchen utensils were labeled “**food-safe**” or “**food contact approved**”, which, according to ALS Statement No. 2024/09 (Working Group of Food Chemistry Experts of the Federal States and the Federal Office of Consumer Protection and Food Safety), could be equivalent to unauthorized advertising with self-evident features, as comparable food contact materials have the same characteristics. A case-by-case examination would have to be carried out here in order to create legal clarity.

It is also not permitted to advertise with self-evident facts in **relation to the legal situation**, as the products must comply with the applicable law anyway. For example, “LFGB”, “EU Compliant (EC) No 2020/1245” or “Food-safe according to the Consumer Goods Ordinance” were used in advertising. Whether this is permissible would have to be clarified by a legal expert in each individual case.

Figure 18: Dishwasher-safe symbols

Comparison of the symbols:



Dishwasher-safe
(manufacturer design)



Dishwasher safe
(according to
DIN standard)



²² Federal Ministry of Justice and Federal Office of Justice: [Bedarfsgegenständeverordnung \(BedGstV\)](#)

5. CONCLUSION

The desire for environmentally friendly and sustainable consumption is also reflected in the availability of kitchen utensils made (in part) from renewable raw materials and materials advertised as particularly sustainable. What applies to conventional materials must also be taken into account for these new materials: Harmful substances can be released into food if they are not manufactured or used as intended.

The fact that material and raw material information was missing or incomplete for some products is problematic. The large number of details and the sometimes vague terms such as “natural fiber composite”, “biocircular plastic” or simply “plant-based raw materials” are more confusing than informative. This can lead to errors in use. In addition, some kitchen items had material compositions that violate legal regulations and are therefore not marketable, such as melamine-bamboo mixtures. However, consumers trust that the products available on the market are safe.

To ensure that the desire for greater sustainability does not become an unnoticed risk to health, the suitability of the items for their intended use must be clear and the instructions for use unambiguous. However, many products currently lack sufficient information

on safe use. In addition, the information is very heterogeneous. The majority of kitchen utensils were found to have information on their packaging regarding their suitability for cleaning in the dishwasher, and around half of the items had information on their suitability for use in the microwave and temperature ranges. However, the text information and symbols were inconsistent, sometimes difficult to interpret, read or even contradictory. The instructions for use were usually only found on the packaging, but not on the products themselves. This poses the risk of the products being used incorrectly. This is because the packaging is disposed of and the information is lost.

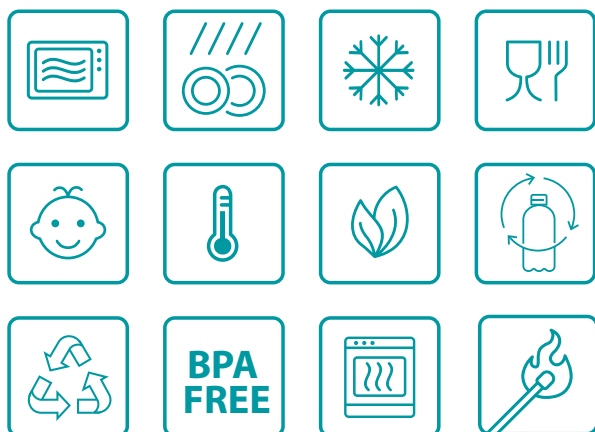
Overall, there is currently a lack of reliable and binding specifications that stipulate sufficiently precise and consistent instructions for use on kitchen utensils. Material and temperature information was only permanently present on the items in a minority of products. In order to protect consumers from improper use and, consequently, potential health risks due to the transfer of harmful substances to food, instructions for use must also be defined and prescribed for food contact materials made from novel, plant-based raw materials.



6. DEMANDS

The consumer advice centers demand the following for kitchen utensils made from renewable raw materials:

- **Complete material information must finally be mandatory, i.e. ALL materials and raw materials used must be specified.** This creates transparency for consumers and for the assessment of marketability by the official food control authorities
- **Uniform pictograms for safe use must be prescribed by law.** In the view of the consumer advice centers, pictograms and information that must be displayed on the products are: glass-fork symbol, dishwasher suitability, microwave suitability, temperature information and a note on unusability in the event of damage. Pictograms should be uniform and easy to understand. The mandatory introduction of the glass fork symbol can counteract advertising with self-evident claims such as “food-safe”. It can also prevent the incorrect use of objects that are not suitable for food, such as decorative bowls.
- **Pictograms and textual information on safe use and materials must be permanently affixed to products, and this must be enshrined in law.** This means that important information on safe use is retained for consumers even if the outer packaging, label, banderole or brochure have long since been disposed of.
- **The legal framework for the obligation of labeling in German must be expanded.** According to the Consumer Goods Ordinance, only a few details have to be provided in German. From the point of view of the consumer advice centers, there is no obligation for the designation and material information.
- **The term “bioplastic” must be defined by law.** Consumers must be able to recognize whether the product is biodegradable (industrial or home composting). It must also be clear whether it comes from fossil sources or renewable raw materials.
- **Food contact materials must be sampled more frequently by the official food control authorities to ensure that non-marketable items are withdrawn from the market promptly.**
- **In order to prevent exaggerated sustainability claims and avoid misleading consumers, sustainability advertising requirements must be enshrined in national law as soon as possible.**



7. ANNEX

Table A-1: List of the 48 products that were included in the evaluation based on the suitability criteria

Product photo	Type (plate, bowl, cutlery, cup/mug, board, bottle, box, set)	Brand	Manufacturer	Intended for children	Place of purchase
	Cutlery	sass & belle	RJB Stone Ltd	yes	Höhenflug GmbH, Holtenauer Straße 35, 24105 Kiel
	Cutlery	jouéco FRIENDLY	JOUÉCO. P.O. (The Netherlands)	yes	Höhenflug GmbH, Holtenauer Straße 35, 24105 Kiel
	Cutlery	nip	Nürnberg Gummi Babyartikel GmbH & Co KG	yes	dm drogerie Markt, Sophienstraße 21, 70178 Stuttgart
	Cutlery	Holle	Holle baby food AG	yes	BIO COMPANY, Babelsberger Str. 16, 14473 Potsdam
	Cutlery	gopandoo	pandoo GmbH	no	Carl Tode Inh. Markus Reich e.K, Prinzestrasse 5, 37073 Göttingen, Germany
	Cutlery	TATONKA	EXPedition GmbH Rudolf-Diesel-Str. 3 86453 Dasing Germany	no	Unterwegs Göttingen, Rote Straße 31, 37073 Göttingen
	Cutlery	Alnatura	Koziol, Germany	no	Alnatura, Schweizer Str. 80, 60594 Frankfurt
	Cutlery	wildo	Wildo Sweden AB, Industrigatan 24, 504 62 Boras, Sweden	no	Die Hütte, Bautzner Str. 39, 01099 Dresden

Table A-1: List of the 48 products that were included in the evaluation based on the suitability criteria
(Continued)

Product photo	Type (plate, bowl, cutlery, cup/mug, board, bottle, box, set)	Brand	Manufacturer	Intended for children	Place of purchase
	Box	bioloco®	chic mic GmbH	no	Ortloff GmbH, Zeppelinstraße 4, 50667 Köln
	Box	Tranquillo	Tranquillo GmbH	no	Naturata GmbH, Krebsgasse 5-11, 51103 Köln
	Box	koziol	koziol »ideas for friends GmbH	no	GALERIA Karstadt Kaufhof gmbH i.l., Sophienblatt 2, 24103 Kiel
	Box	ajaa!	4e solutions GmbH	yes	Safran Naturkost, Karl-Liebknecht-Str. 133, 14482 Potsdam
	Box	Fackelmann	Fackelmann GmbH&Co.KG, Sebastian-Fackelmann-Str. 6, 91217 Hersbruck	no	Edeka Schuler, Äußere Bayreuther Str. 78, 90409 Nürnberg
	Box	BIOBU	EKOBO SAS, 135 av. Pierre Sépard, 84000 Avignon, France	no	KHHH, Lange Reihe 70, 20099 Hamburg
	Small board	Fackelmann	Fackelmann GmbH&Co.KG, Sebastian-Fackelmann-Str. 6, 91217 Hersbruck	no	Edeka Schuler, Äußere Bayreuther Str. 78, 90409 Nürnberg
	Small board	RIG-TIG	RIG-TIG Christianshaven Kanal 4, 1406 Copenhagen K Denmark	no	Oberpollinger, Neuhauserstr. 18, 80331 München

Table A-1: List of the 48 products that were included in the evaluation based on the suitability criteria
(Continued)

Product photo	Type (plate, bowl, cutlery, cup/mug, board, bottle, box, set)	Brand	Manufacturer	Intended for children	Place of purchase
	Small board	DURACORE	Continenta GmbH, Tullastr. 80, 79108 Freiburg	no	Kustermann, Viktualienmarkt 8, 80331 München
	Small board	NXT Board	NXT Board UG, Julius-Leber- Str. 28, 65468 Trebur	yes	Kustermann, Viktualienmarkt 8, 80331 München
	Small board	GastroMax by orthex	Orthex Group, Suomalaistentie 7, 02270 Espoo Finland	no	E-Center Halle, Hermesstrasse 15, 06114 Halle
	Small board	Gefu	GEFU Innovations + Logistic GmbH, Bauweg 28, 59889 Eslohe	no	art+design kleine Ulrichstraße 16, 06108 Halle
	Bottle	VAUDE	VAUDE Sport GmbH & Co.KG, VAUDE-Straße 2, 88069 Tettngang	no	Sporthaus Schuster GmbH, Rosenstraße 3-5, 80331 München
	Bottle	ELITE (Jet Green)	ELITE SRL, VIA FORNACI 4, 35014 Fontaniva (PD) ITALY	no	DECATHLON München Mono, Pelkovenstr. 143-147, 80992 München
	Bottle	ecobottle	Smartshake AB	no	SportScheck, Anger 2, 99084 Erfurt
	Bottle	Damn good plastic bottle	BE O Hoofdkantoor	no	s Fachl, Inselstraße 4, 55116 Mainz
	Bowl	VICTORI ARTS& CRAFTS	CONTIGO FAIRTRADE GMBH	no	CONTIGO Göttingen GmbH, Lange Geismar-Straße 51, 37073 Göttingen

Table A-1: List of the 48 products that were included in the evaluation based on the suitability criteria
(Continued)

Product photo	Type (plate, bowl, cutlery, cup/mug, board, bottle, box, set)	Brand	Manufacturer	Intended for children	Place of purchase
	Bowl	nip	Nürnberg Gummi Babyartikel GmbH Co. KG, Breitenloher Weg 6 91166 Georgens-gemünd www.nip.family	yes	Globus, Am Wirthembösch, 66606 St. Wendel
	Bowl	Trixie	Mellis BV, Oude Gentweg 62, 9840 De Pinte, Belgium	yes	Frieda Hain, Gärtnerstraße 10, 10245 Berlin
	Set	BIOBU	EKOBO SAS	no	Landmarkt, Magdeburger Allee 160, 99089 Erfurt
	Set	Light my Fire	Light My Fire Sweden AB	no	SportScheck, Anger 2, 99084 Erfurt
	Set	Little Wilde: the Whale dinnerware	TINY MANNERS APS DENMARK	yes	Höhenflug GmbH, Holtenauser Straße 35, 24105 Kiel
	Set	Lässig	Lässig GmbH	yes	Baby-walz, Königstraße 43b, 70173 Stuttgart
	Set	koziol	koziol »ideas for friends GmbH, Werner-von-Siemens-str. 90, 64711 Erbach	yes	Höffner, Ludwig- Koch-Str. 3, 81249 München
	Set	F/BEL\B	Fabelab ApS, Copenhagen	yes	Juno + Fips, Waldemarstraße 7, 18057 Rostock,

Table A-1: List of the 48 products that were included in the evaluation based on the suitability criteria
(Continued)

Product photo	Type (plate, bowl, cutlery, cup/mug, board, bottle, box, set)	Brand	Manufacturer	Intended for children	Place of purchase
	Set	Mircon Ware Super Lock	Mircon Ware Super Lock 125/212-217 Moo 3 Soi Kamnanman 18, Ekchai 36 Road, Bangkhuntien, Chomthong, Bangkok 10150 (Not to be found on product → Research!)	no	TK Max, Marktplatz 3, 06108 Halle
	Cup/Mug	Liewood	Liewood	no	nordlykk so&so. GmbH, Holtenauer Straße 145, 24118 Kiel
	Cup/Mug	nip	Nürnberg Gummi Babyartikel GmbH & Co. KG	yes	Baby-walz, Königstraße 43b, 70173 Stuttgart
	Cup/Mug	Lucky Cup	Gifts with Impact BV	no	s Fachl, Inselstraße 4, 55116 Mainz
	Cup/Mug	OEYO	OEYO AS, Tlf: 32090911, N-3580 Geilo	no	Unterwegs Göttingen, Rote Straße 31, 37073 Göttingen
	Cup/Mug	magu	MAGU GmbH, Bruckmühlenstr. 25, 79235 Vogtsburg	no	BAQU, Susannenstr. 39-41, 20357 Hamburg
	Cup/Mug	EcoffeeCup	Ecoffee Cup Limited, BN44 3TN	no	Denns Biomarkt, Sachsentor 58, 21029 Hamburg
	Cup/Mug	Kaffeeform	Kaffeeform GmbH, Chorinerstr. 56, 10435 Berlin	no	Goodbuy, Wühlischstraße 15-16, 10245 Berlin

Table A-1: List of the 48 products that were included in the evaluation based on the suitability criteria
(Continued)

Product photo	Type (plate, bowl, cutlery, cup/mug, board, bottle, box, set)	Brand	Manufacturer	Intended for children	Place of purchase
	Cup/Mug	wildo	Wildo Sweden AB, Industrigatan 24, 504 62 Borås, Sweden	no	Die Hütte, Bautzner Str. 39, 01099 Dresden
	Cup/Mug	reer	reer GmbH, Muehlstr. 41, Leonberg	no	BabyOne Leipzig Sachsenpark, Handelsstraße 10, 04356 Leipzig
	Plate	KUPILKA	Kupilka (Finland)	no	Unterwegs Kiel KG, Andreas-Gayk-Straße 23-25, 24103 Kiel
	Plate	Babylove Nature	dm drogerie Markt GmbH & CoKG	yes	dm drogerie Markt, Sophienstraße 21, 70178 Stuttgart
	Plate	zuperzozial	Capventure BV, Amsterdam	no	Freiraum – Wohnbagatellen, Barnstorfer Weg 6, 18057 Rostock
	Plate	koziol	koziol » ideas for friends GmbH, Werner von Siemens-Str. 90, 64711 Erbach	no	REWE, Dalbergstr. 29, 36037 Fulda
	Plate	Lässig	Lässig GmbH, Im Riemen 32, 64832 Babenhäusen	yes	BabyOne Leipzig Sachsenpark, Handelsstraße 10, 04356 Leipzig



Table A-2: Categorisation of the material specifications

Keyword	Assigned, equivalent statements/synonyms
Bamboo	Bamboo fibre, bamboo, etc.
Bioplastic	Biobased plastic etc.
Wood	Wood, wood fibre or the specific name of the type of wood
Carbohydrates	None
Melamine	Melamine binder
Minerals	'on a mineral basis'
PE	Polyethylen, PE-LD etc.
PLA	C-PLA, Polylactide, Polylactic acid, PLA-Compound, PLA-Blends
PP	Polypropylen
PS	Polystyrol
Vegetable oils	Specific mention of the plant oil
Plant-based raw materials	Plant-based material, plant-based, renewable raw material and all other information that does not mention the specific plant or the specific plant component
Plant sugar	None
Recycled material	All other information that indicates a recycled content
Silicone	None
Starch	Specific mention of starch such as corn starch or modified starch
Composite material	Natural fibre composite material, natural fibre composite material, biocomposite, eco-composite, wood composite material
Wax	None
Cellulose and cellulose	None
Sugar cane	None

Table A-3: Categorisation of sustainability statements

Keyword	Assigned, equivalent statements/synonyms
Biobased	Renewable, renewable, renewable
Biological	Organic
Biodegradable	Compostable, industrially compostable, biodegradable
FSC	Sustainable forestry
Climate/CO₂	CO ₂ -reduced, CO ₂ -neutral, climate-neutral, climate positive
Sustainable	Sustainable
Natural	None
Recyclable	None
Resource-saving	Less energy consumption, recycled material
Environmentally friendly	Ecological, eco, low-emission
Reusable	Reusable, durable, recyclable

PUBLISHER:

Verbraucherzentrale Mecklenburg-Vorpommern e.V.
Erich-Schlesinger-Str. 35
18059 Rostock

CONCEPTION AND REPORT:

Verbraucherzentrale Bayern e.V.,
Verbraucherzentrale Mecklenburg-Vorpommern e.V.,
Verbraucherzentrale Niedersachsen e.V.,
Verbraucherzentrale Sachsen-Anhalt e.V.,
Verbraucherzentrale Schleswig-Holstein e.V.,
Verbraucherzentrale Thüringen e.V.

LAYOUT:

weeks.de Werbeagentur GmbH
Donnersbergerstrasse 9
80634 Munich, Germany

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Version: November 2024

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